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JAN 22 1925

Commodity Prices Ascend—Page 273

IRON TRADE REVIEW

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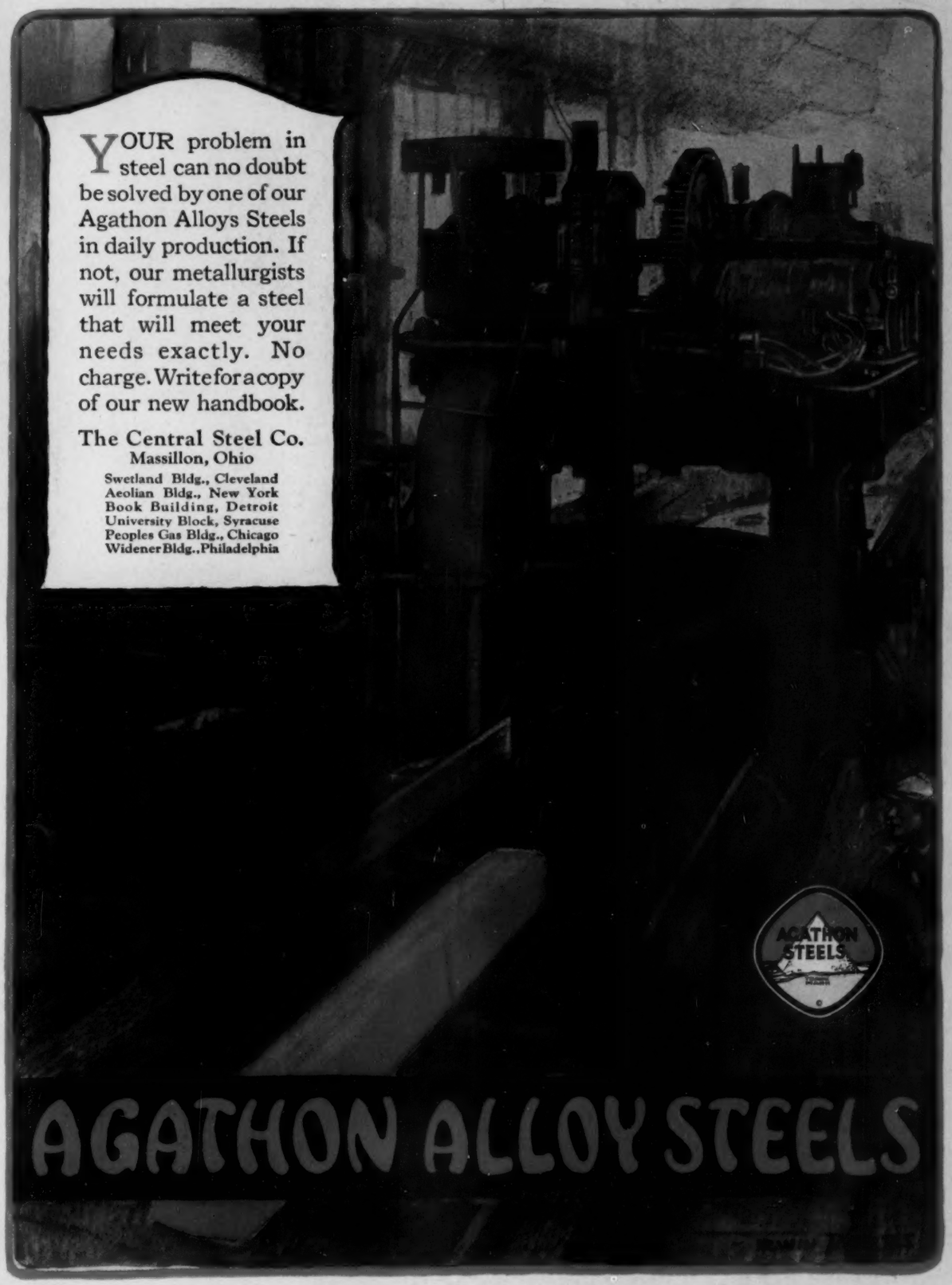
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A Record of Achievement

Plants of the Becker Oven Type in the United States and Canada

	LOCATION	No. OVENS
COKE PLANTS		
U. S. Steel Corp.	Clairton	366
Carnegie Steel Company	Gary, Ind.	138*
Illinois Steel Company	Youngstown, O.	61
Republic Iron & Steel Co.	Birmingham, Ala.	57*
Republic Iron & Steel Co.	Weirton	37
Weirton Steel Company	Provo	33
Columbia Steel Company	Warren, O.	47
Trumbull-Cliffs Furnace Co.	Painesville, O.	23
Diamond Alkali Co.	Buffalo, N. Y.	114
Bethlehem Steel Company	So. Chicago, Ill.	110*
By-Product Coke Corp.		
GAS PLANTS		
Battle Creek Gas Company	Battle Creek, Mich.	11
Consumers Power Company	Saginaw River Plant	19
Consumers Power Company	Jackson, Mich.	15*
Winnipeg Electric Co.	Winnipeg, Canada	17
Utica Gas & Electric Co.	Utica, N. Y.	21
Northern Ind. Gas & Elec. Co.	Fort Wayne, Ind.	19*
Lynn Gas & Elec. Co.	Lynn, Mass.	11*

*Under Construction.

In Less Than Three Years—

Less than three years have elapsed since The Koppers Company's Becker type combination coke and gas oven was introduced. In this time contracts for seventeen installations totaling 1099 ovens of the Becker type have been received. Eleven of these plants are now in operation, demonstrating in actual practice that this type of oven is a marked improvement over all previous types from the standpoint of design, construction and operation.

THE KOPPERS COMPANY
PITTSBURGH, PENNA.

NEW YORK CITY
120 Broadway

CHICAGO, ILL.
Peoples Gas Bldg.

IRON TRADE REVIEW
Registered U. S. Patent Office
The Authority of Industry National and International
Vol. LXXVI Cleveland, January 22, 1925 No. 4

Buying Pause Envelops Market

New Business in Lessened Volume Though Production Continues To Mount and Mills Begin Raising Prices for Second Quarter—Pig Iron Advance Halted and Scrap and Coke Are Reactionary—Foreign Competition Appears

IRON and steel conditions appear in contrast for, while a general pause has come upon new buying, production has been further speeded up in several quarters until it is nearing the maximum point of capacity. The reaction in new business following the sharp activity in November and December has been especially apparent the past week. It has applied not only to finished steel but to the primary materials such as pig iron, coke and scrap.

Some of the mills also have experienced a more sluggish action from buyers in specifying against commitments recently made which in the aggregate are large. This situation has a very direct bearing upon the question whether the high gait to which production has been worked up can be maintained. In this respect the independents seem less fortunately fixed than the Steel corporation plants which are taking in tonnage in good volume and are still putting on additional capacity. Many buyers appear in no haste to order out steel except where a definite need is created.

Steelmaking in the Pittsburgh district at present is rated at 90 to 95 per cent and at Chicago better than 95 per cent. The Mahoning valley shows virtually full activity.

High prices asked for coke when wage rates recently were restored are not holding and some of the operators are beginning to curtail output. Coke prices had been lifted above those of a year ago when the same wage scale was in effect.

Prices Are Steady

The slowing up of the market has not been attended by any weakness in steel prices. On the contrary there is considerable talk both at Chicago and Pittsburgh of a possible $2 to $3 per ton advance in plates, shapes and bars to cover second quarter buying though the thought is raised this may be aimed at stirring up present specifications. The leading Chicago independent Tuesday announced an advance of $2 per ton on these products for second quarter. Some mills have advanced wire products $2 per ton.

IRON TRADE REVIEW composite of fourteen leading iron and steel products shows the smallest variation in eleven weeks. The index this week is $41.10. Last week it was $41.05.

Home Mills Undersold

Foreign competition has figured in a more important way in the week's news. The Interborough Rapid Transit Co., New York, it is reported, may buy 6000 tons of rails abroad, following the recent action of the Ford road, the Detroit, Toledo & Ironton in placing 10,000 tons with La Providence works in Belgium. These rails are offered around $35 c.i.f. against the $43 mill price of the domestic works. French billets have been quoted at $27, Gulf or Atlantic ports or $34 Chicago.

Railroad buying has been more moderate. The New York Central placed 1000 freight cars and the Rock Island has put out a definite inquiry for 1600. The Pennsylvania has finally decided its rail program for 1925 will embrace 100,000 tons.

Apart from the award of 26,000 tons for the New York Life Insurance building at New York, the week has been a light one in new building steel jobs. The week's total of contracts placed is 42,636 tons.

Structural steel awards in 1924 as computed by the department of commerce reached the largest total in history or 2,048,200 tons. December awards, it is shown, kept up to a high level, totaling 195,887 tons or 80 per cent of shop capacity.

Scrap with its usual sensitiveness to new phases of the market is decidedly reactionary after a rise of some weeks. Prices are off $1 to $2

Price Rise Checked

The advance in pig iron has been checked and a lull in buying is on the market. Some makers now will accept for second quarter, the prices now named for first quarter. Some consumers; notably among the automobile foundries, are not taking out iron as expected.

Restoration of the 8-hour day in the iron and steel industry in Germany by order of the cabinet is reported by cable. While the 8-hour day has been the legal limitation for some time, it has been waived by consent of the workers, who now refuse to extend the agreement for February.

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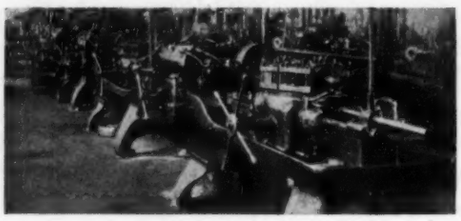
A Chapter in Romance of Manufacturing

NEW England genius for manufacturing is the keynote of an interesting article on page 277 of this issue. Perhaps nothing was accomplished that could not have been duplicated elsewhere, when the Colt company changed from war to peacetime pursuits; but as an example of adaptability it reflects credit on the



Taking Up the Postwar Slack. Page 277.

New England reputation for knowing what to make, and how to make it. The Connecticut company, famous for firearms, emerged from the war with 1,000,000 square feet of floor space idle. That space is about what is found in a 20-story office building, 200 x 200 feet. After five years the plant is operating profitably at almost full capacity. The article "Taking Up the Postwar Slack," describes how it was done. The "knack of knowing" in manufacturing comes from studying the methods of the masters—and the New Englanders are masters at manufacturing.

Cross Sections of Industry

"2157 IRON TRADE REVIEW subscribers are connected with fabricating shop operation. 665 fabricating shops are subscribers."

—*From IRON TRADE REVIEW'S Survey, "Oil Burners".*

Pig Iron Sellers Reach Waiting Stage—Activity Limited to Shipments; Some Specifications Overdue—Market Tone Is Softer

PITTSBURGH, Jan. 20.—The pig iron market is experiencing a lull, due to the fact most melters are covered. Further buying is expected early in February for shipment in this quarter, since coverages are insufficient for the present rate of consumption except in a few instances. Second quarter buying is not yet under way in earnest. Until ore and coke matters are more clarified iron producers are inclined to avoid further commitments. Some market authorities anticipate a 50-cent ore increase, meaning $1 a ton more for pig iron. Since 5000 tons of basic was sold to the Sharon Steel Hoop Co. at $22, noted last week, steelmaking grades have been dull. Efforts to advance the market to $22.50 have not been fully successful. The American Steel Foundries, Alliance, O., is understood to have bought a few thousand tons below $22.50. One steelmaker in this district claims to have obtained $23, furnace, for a few small lots. Basic for this quarter is available at $22 and for second quarter the minimum is $22.50. Small lots of bessemer are bringing $23 to $23.50, the maximum applying on second quarter tonnages. No inquiries are out, although it is understood the Wheeling Steel Corp. may purchase a tonnage because of blowing out its furnace for repairs. Prices below $22 to $22.50, valley, on foundry iron have disappeared. Some bankers are holding iron at $23, minimum. A middle interest and one valley merchant stack are quoting $22.50 on the No. 2 grade. A few brokers possessing iron refuse to sell and are holding for higher levels. They wish to buy additional iron below $22.50, base, but are unable to get furnace men to accept orders. The Westinghouse Air Brake Co. is understood to have been unsuccesful in locating second quarter tonnage below $22.50. Some makers are quoting $23, minimum. A few small sales are noted at that level. One buyer of gray forge or No. 3 iron closed for 1500 tons with a valley producer at $22.50, valley. One malleable sale of 500 tons is noted at $23. Low phosphorus still is bringing $29 to $29.50 valley in small lots.

Foreign Iron Active

Boston, Jan. 20.—At the moment foreign iron seems to be in the limelight in New England. Several sellers have brought cargoes into the district and others have continental iron on the way. Prices for the most part are held within about $1 of the delivered domestic prices, although here and there larger concessions are reported. Recent sales in the district include two lots of more than 1000 tons, and about half a dozen ranging from 200 to 300 tons. Most observers feel that heavy buying for second quarter is in immediate prospect. Eastern Pennsylvania furnaces are quoting $24 to $25 for No. 2X iron (2.25 to 2.75 silicon) at the furnace or $27.65 to $28.65 delivered. Buffalo furnaces are meeting these delivered prices. A recent sale of 1000 tons of Buffalo iron is reported at $22 furnace, or $26.91 delivered.

Eastern Sales Small

New York, Jan. 20.—Pig iron demand is somewhat improved but on the whole the total sold is small. Sales of domestic iron here probably did not exceed 4000 tons during the past week. Inquiry is better. The Burnham Boiler Corp. is in the market for 3000 tons of foundry iron of which 500 tons is for the first quarter and the remainder for the second quarter. The Worthington Pump & Machinery Corp. continues its negotiations for about 7000 tons of foundry for second quarter shipment to its various plants. In addition a number of consumers, while not having actual inquiries before the trade, are tentatively in the market and will place second quarter orders shortly. In the meantime, offers of first quarter tonnage by producers have not resulted in much business. Most consumers seem covered for the first quarter and are interested only in second quarter. The eastern foundry market generally is $24, base, furnace, but there appear to be occasional exceptions when somewhat lower is done. Silicon differentials range all the way from 50 cents to $1 on 2.25 to 2.75 silicon and an additional 50 cents to $1.50 for 2.75 to 3.25 silicon. On Buffalo and New York state foundry iron the market is equivalent to $23, base furnace, plus 50 cents for 2.25 to 2.75 silicon plus $1 for 2.75 to 3.25 silicon. It is expected that one of the Replogle furnace, Wharton, N. J., will go in between Feb. 15 and Feb. 28. The Carbon Furnace Co. may light its furnace at Parryville, Pa., soon. It is expected the Hokendauqua furnace of the Thomas Iron Co. will resume before the end of March. Sales of foreign foundry iron continue to be made quietly. This business has aggregated at least 5000 tons during the past two to three weeks. In addition, a fair amount of English low phosphorus iron continues to be sold.

Buffalo Market Strong

Buffalo, Jan. 20.—Pig iron inquiry is estimated at 7000 to 8000 tons, with no lots of 1000 tons or more included in the total. New inquiry is not developing in the volume that was expected, but the market undertone is said to be stronger than surface indications. Sales indicate inquiry is being covered promptly. With 16 furnaces now making iron in the district it is understood production may go above 80 per cent of capacity before the end of this quarter. One of the merchant plants operating at two-thirds of capacity may go to maximum production within 60 days, and another plant which has not been making iron for more than six months is likely to resume about the end of the quarter. Eighteen to 20 furnaces may be in blast early in the second quarter. No weakness in prices is apparent in the district. The quotations of all sellers are: No. 2 foundry, $23; No. 2X, $23.50; and No. 1X, $24.50. Considerable second quarter business is said to have been booked at these prices.

Market Is Quieter

Cleveland, Jan. 20.—Some foundries specializing in automobile castings are not taking iron in the volume expected, leading certain sellers to believe that much of their buying recently was speculative. Furnaces shipping directly to large automobile plants report buyers are taking the iron as ordered. One of the largest automobile producers in Michigan is in this class. One lake furnace is shipping considerably more than its make so far this month, most of the iron going to the automotive plants. Foundries specializing on railroad castings are taking all they bargained for. The market in general is only moderately active. While some sellers a few weeks ago were reluctant to quote present prices on second quarter business some of them denote their willingness to do so now. This week is the first in several wherein no price advances are reported. One of the Cleveland furnaces asks $23.50, furnace, for local or outside delivery. Another quotes $24, furnace, for local delivery, although not in a position to take further orders at this time. Sales were made this week at $22.50 to $23, valley. Lake furnaces are doing some business at $23. Sales of foundry and

malleable grades booked by interests represented here totaled 21,000 tons in the past week. The Worthington Pump & Machinery Corp. is inquiring for 7200 tons of foundry and malleable. The General Electric Co. is in the market for 1000 tons for one of its eastern plants. Most of the inquiry, totaling about 25,000 tons, is coming from the East. No sales of basic are reported. The valley market is quoted at $22.50. One Cleveland maker is asking $23.50, furnace.

Shipments Exceed Output

Chicago, Jan. 20.—Shipments of northern iron are exceeding the output of seven active merchant stacks in this district. Consumers are not lowering pressure for deliveries, but selling is considerably less than in December. This is attributed to the fact that first quarter buying is accomplished, and the second quarter is yet distant, although considerable iron has been sold through the first half. The market is firm at $24, furnace. Three inquiries for 1000 tons each from Chicago melters are pending. Also there is an inquiry for 1000 tons from a southern Michigan stovemaker. Southern iron still is available at $20, Birmingham, though some furnaces are asking $21. Several sales of low phosphorus are noted, at $33.50 to $34, delivered. Charcoal iron is unchanged at $26, furnace.

Buyers Marking Time

Cincinnati, Jan. 20.—Pig iron consumers apparently are marking time. This is thought to be a natural reaction following the active condition recently prevailing. Buying has involved relatively unimportant tonnages. New inquiries for iron of all grades are at a low ebb. A few users have inquired for second quarter, and several in the Ohio valley have placed lots involving 200 to 300 tons. The outstanding transaction of the week was the sale of 500 tons of No. 1 northern foundry iron to a melter at Davton, O. The Richmond Malleable Co., Richmond, Ind., is reported to have bought 400 tons of malleable iron, while a sale of 100 tons of silvery iron was noted to the Globe Stove & Range Co., Kokomo, Ind. This company closed on a sizable tonnage of southern iron for shipment to several foundries. Prices remain unchanged, but the market is not tested. While northern iron ranges from $22 to $23, Ironton base, the producer quoting $23 furnace has booked a fair volume of orders at that figure. Southern iron ranges from $20 to $20.50, Birmingham base, with the Sloss-Sheffield Steel & Iron Co. asking $21 for second quarter.

Anxious for Deliveries

St. Louis, Jan. 20.—Sellers of pig iron are chiefly concerned with shipments. The melt continues to increase, and mills and foundries are anxious for speedy deliveries. One important melter has asked to have the entire tonnage it purchased for first quarter forwarded in January. It has placed an order for additional iron for shipment in February and March. Order books of the principal industries are in excellent shape, a number containing business sufficient to insure the present rate of operations through the first four months. A fair amount of buying comes chiefly from the smaller users. About 4500 tons of iron was sold last week. The largest single item was 500 tons of basic to a steelmaker in this district.

Inquiry for pig iron is restricted to small tonnages. The largest local inquiry is for 350 tons for first half delivery to a specialty maker. Prices continue firm and while offerings have increased slightly they are not plentiful. No. 2 southern iron is quoted at $21.50 to $22. The representative of a Birmingham maker reports sales aggregating 450 tons at $22. The Chicago price is unchanged at $25 for No. 1 foundry. The leading local producer is asking $25 to $25.50 f.o.b. Granite City.

Stove manufacturers here are busy, and have decided not to increase prices. An agreement continuing present wages has been made with the molders.

Southern Market Firm

Birmingham, Ala., January 19.—The southern pig iron market is firm at $20 to $20.50 for first quarter. For the second quarter makers are beginning to ask $21. Sales are in small lots. The Tennessee Coal, Iron & Railroad Co., will have the No. 1 blast furnace at Ensley and the Oxmoor furnace in operation within a week. The Sloss-

(*Concluded on Page 256*)

Prices Present and Past

Representative market figures yesterday, and for last month, three months ago and one year ago

	Jan. 21, 1925	Dec., 1924	Oct., 1924	Jan., 1924
PIG IRON				
Bessemer, valley, del., Pitts ..	$24.76	23.51	21.76	24.66
Basic, valley	22.00	20.75	19.00	21.40
Basic, eastern del., eastern Pa.	24.25	23.25	20.00	22.50
*No. 2 foundry, del. Pitts.	24.26	22.61	21.26	24.16
No. 2 foundry, Chicago	24.00	22.40	20.50	23.70
*Southern No. 2, Birmingham..	20.00	19.80	17.50	21.60
*Southern Ohio, No. 2, Ironton	22.00	21.80	20.00	22.90
**No. 2X, Virginia furnace	24.50	24.50	24.50	25.00
**No. 2X, eastern, del. Phila..	25.76	24.88	21.36	24.26
Malleable, valley	22.50	21.10	19.50	22.00
Malleable, Chicago	24.00	22.40	20.50	23.70
Lake Superior charcoal, Chicago	29.04	29.04	29.04	29.04
Gray forge, val., del. Pittsburgh	24.26	22.01	20.76	23.56
Ferromanganese, del., Pitts....	119.79	109.79	104.79	113.79
SEMIFINISHED MATERIAL				
Sheet bars, bessemer, Pittsburgh	40.00	37.75	37.20	42.50
Sheet bars, open-hearth, Pitts....	40.00	37.75	37.20	42.50
Billets, bessemer, Pittsburgh....	38.00	35.60	36.60	40.00
Billets, open-hearth, Pittsburgh	40.00	35.60	36.60	40.00
FINISHED MATERIAL				
Steel bars, Pittsburgh	2.10	2.10	2.00	2.40
Steel bars, Chicago	2.10	2.10	2.00	2.50
Steel bars, Philadelphia	2.32	2.32	2.32	2.72
Iron bars, Philadelphia	2.28	2.42	2.32	2.57
Iron bars, Chicago mill	2.00	2.00	2.10	2.40

*1.75 to 2.25 silicon. **2.25 to 2.75 silicon.

	Jan. 21, 1925	Dec. 1924	Oct., 1924	Jan., 1924
FINISHED MATERIAL (Continued)				
Beams, Pittsburgh	2.10	2.05	2.00	2.50
Beams, Philadelphia	2.32	2.32	2.12	2.72
Beams, Chicago	2.20	2.20	2.00	2.60
Tank plates, Pittsburgh	2.00	1.90	1.80	2.50
Tank plates, Philadelphia	2.32	2.22	1.92	2.72
Tank plates, Chicago	2.20	2.20	2.00	2.60
Sheets, blk., No. 28, Pittsburgh	3.50	3.50	3.40	3.75
Sheets, blue anl., No. 10, Pitts.	2.70	2.65	2.60	2.95
Sheets, galv., No. 28, Pittsburgh	4.75	4.65	4.60	4.95
Sheets, black, No. 28, Chicago..	3.75	3.75	3.65	4.10
Sheets, blue anl. No. 10, Chicago	2.85	2.85	2.85	3.35
Sheets, galv. No. 28, Chicago	4.90	4.90	4.75	5.20
Wire nails, Pittsburgh	2.85	2.80	2.75	3.00
Wire nails, Chicago	3.00	3.00	2.90	3.35
COKE				
Connellsville furnace, ovens	3.85	3.70	3.00	3.80
Connellsville foundry, ovens	4.75	4.60	4.00	4.35
OLD MATERIAL				
Heavy melting steel, Pittsburgh	22.50	21.00	18.40	21.10
Heavy melting steel, eastern Pa.	19.00	20.50	17.20	18.15
Heavy melting steel, Chicago ...	19.50	18.65	16.25	17.40
No. 1 wrought, eastern Pa.	21.50	20.10	18.75	20.10
No. 1 wrought, Chicago.....	19.00	18.75	15.95	17.50
Rails for rolling, Chicago	21.00	19.90	17.20	18.90

Composite Market Average

Representing the Combined Average Prices Per Ton of Fourteen Leading Iron and Steel Products Yesterday, One Week, One Month, Three Months, One Year and Ten Years Ago.

Jan. 21, 1925	Jan. 14, 1925	Dec., 1924	October, 1924	Jan., 1924	Jan., 1915
$41.10	$41.05	$40.21	$38.65	$43.26	$21.90

Products Included Are Pig Iron, Billets, Slabs, Sheet Bars, Wire Rods, Steel Bars, Plates, Structural Shapes, Black, Galvanized and Blue Annealed Sheets, Tin Plate, Wire Nails and Black Pipe

Iron and Steel Prices

SCRAP PRICES, PAGE 306; WAREHOUSE, ORE, PAGE 302; NUTS, BOLTS AND RIVETS AND PIPE PRICES, PAGE 308

Pig Iron

Prices per gross ton

Bessemer, valley	$23.00 to 23.50
Bessemer, Pittsburgh	24.76 to 25.26
Basic, valley	22.00 to 23.00
Basic, Pittsburgh	23.76 to 24.76
Basic, Buffalo	22.50 to 23.00
Basic del., eastern Pa.	24.00 to 24.50
Malleable, valley	22.50 to 23.00
Malleable, Pittsburgh	24.26 to 24.76
Malleable, Cleveland, del.	24.00
Malleable, Chicago	24.00
Malleable, Buffalo	23.00
Malleable, del., eastern Pa.	25.50 to 27.01

FOUNDRY IRON SILICONS

No. 2 Northern	1.75 to 2.25
No. 2 Southern foundry	1.75 to 2.25
No. 2X Eas'n and Virginia	2.25 to 2.75
No. 1X Eastern	2.75 to 3.25
No. 1 Chicago	2.25 to 2.75
No. 2 foundry Eastern	1.75 to 2.25

No. 1X, eastern del., Phila.	26.76 to 27.26
No. 1X, Buffalo	24.50
No. 1 foundry, Chicago	25.00
No. 2 foundry, valley	22.50 to 23.00
No. 2 foundry, Pittsburgh	24.26 to 24.76
No. 2 foundry, Buffalo	23.00
No. 2 foundry, Chicago	24.00
No. 2 foundry, Granite City	25.00 to 25.50
No. 2 foundry, Ironton fur.	22.00 to 23.00
No. 2 foundry, Cleveland, del.	24.00
No. 2 foundry, del., Phila.	24.76 to 25.26
No. 2 foundry, N. J., tidewater	25.39 to 25.64
No. 2X, eastern del., Phila.	25.76 to 26.26
No. 2X, eastern del., Phila	26.39 to 26.64
No. 2X, eastern del., Boston	27.65
No. 2X, foundry, Buffalo fur.	23.50
No. 2X, Buffalo, del., Boston.	27.91 to 28.41
No. 2 southern, Birmingham	20.00 to 21.00
No. 2 southern, Cincinnati	24.05 to 25.05
No. 2 southern, Philadelphia	27.80 to 28.80
No. 2 southern, Chicago	26.01 to 27.01
No. 2 southern, Cleveland	26.01 to 27.01
No. 2 southern Boston (rail and water)	26.91 to 27.91
No. 2 southern, St. Louis	25.17 to 26.17
No. 2X, Virginia furnace	24.50 to 25.50
No. 2X, Virginia, Phila.	29.67 to 30.17
No. 2X, Virginia, Jersey City	30.04 to 30.54
No. 2X, Virginia, Boston	30.42 to 30.92
Gray forge, eastern Pa	24.00 to 25.00
Gray forge, val. del., Pitts.	24.26
Low phos., standard, valley	29.00 to 29.50
Low phos., standard, Phila.	29.79
Low phos., Lebanon, furnace	26.00
Low phos., English, Phila	26.76 to 27.26
Charcoal, Birmingham	30.00
Charcoal, Superior, Chicago	29.04

Silvery iron, Jackson county, Ohio, furnace, 7 to 8 per cent, $29.00; 8 to 9 per cent, $30.50; 9 to 10 per cent; $32.50; 10 to 11 per cent, $34.50; 11 to 12 per cent, $37.00; 12 per cent, $39.50.

Bessemer ferrosilicon, Jackson county, Ohio, furnace, 10 to 11 per cent, $39.50; 11 to 12 per cent, $42.00; 12 to 13 per cent, $44.50.

Ferroalloys

†Ferromanganese 78 to 82 per cent, tidewater, or furnace first hand and resale	$115.00
Ferromanganese delivered Pittsburgh	119.79
Spiegeleisen 19 to 21 per cent domestic furnace or tidewater	32.00 to 34.00
Ferrosilicon, 50 per cent contract freight allowed	85.00
Ferrotungsten standard, cents per pound contained	85.00 to 87.00
Ferrochrome, 60 to 70 chromium, 6 to 8 carbon, cents per pound contained, del.	11.50
Ferrovanadium, 30 to 40 per cent per pound estimated, according to analysis	3.60 to 3.75
Ferro-carbon-titanium, car lots, producer's plant, net ton	200.00

†Duty paid.

Coke

Beehive, Ovens
Prices per net ton

Connellsville, furnace	3.85 to 5.50
Connellsville foundry	4.75 to 5.50
New river foundry	8.50 to 9.00
Wise county furnace	4.25 to 4.50
Wise county foundry	5.00 to 5.50
Alabama furnace	4.00 to 4.50
Alabama foundry	4.50 to 5.00

By-Product

Foundry, Newark, N. J., del.	$10.41
Foundry, Chicago, ovens	10.75
Foundry, New England, del.	11.50
Foundry, St. Louis	11.00
Foundry, Granite City, Ill.	9.00

Semifinished Material

Prices per gross ton

BILLETS AND BLOOMS

4 x 4-inch and larger

Pittsburgh, open hearth	$40.00
Pittsburgh, bessemer	38.00
Youngstown	38.00 to 40.00
Philadelphia	42.80 to 43.80
Chicago	37.00 to 38.00
Forging, Pittsburgh	45.00
Forging, Philadelphia	47.80 to 48.80

SHEET BARS

Pittsburgh and Youngstown	40.00

SLABS

Pittsburgh	38.00 to 40.00
Youngstown	38.00 to 38.50

WIRE RODS

¼-inch and finer

Pittsburgh	$48.00
Cleveland	48.00
Chicago	50.00 to 51.00

Standard extras, $2.50 per ton over ¼-inch; $5 for screw stock; $15 for acid wire rods. Carbon extras, $3 for 0.20 to 0.40; $5 for 0.41 to 0.55; $7.50 for 0.56 to 0.75; $10 over 0.75.

SKELP

Grooved skelp, Pittsburgh	2.00c to 2.10c
Universal skelp, Pittsburgh	2.00c to 2.10c
Sheared skelp, Pittsburgh	2.00c to 2.10c

Structural Shapes

Prices per pound

Pittsburgh	2.10c
Philadelphia	2.32c to 2.42c
New York	2.34c to 2.44c
Chicago	2.20c
Cleveland	2.29c
Birmingham	2.25c to 2.35c

Steel Plates

Pittsburgh	2.00c to 2.10c
Philadelphia	2.32c to 2.42c
New York	2.34c to 2.44c
Chicago	2.20c
Cleveland	2.19c
Birmingham	2.15c to 2.25c

Iron and Steel Bars

Pittsburgh, soft steel	2.10c
Pittsburgh, cold finishing	2.25c
Pittsburgh, forging quality	2.35c
Philadelphia, soft steel	2.32c to 2.42c
New York, soft steel	2.34c to 2.44c
Chicago, soft steel	2.10c
Cleveland, soft steel	2.29c
Birmingham, soft steel	2.25c to 2.30c
San Francisco, soft steel	2.60c
Pittsburgh, refined iron	2.90c to 4.50c
Pittsburgh, reinforcing billet	2.10c
Chicago, rail steel	2.03c
Mill, rail steel	1.90c to 2.00c
Philadelphia, common iron	2.28c to 2.32c
Philadelphia, coon iron	2.34c
Chicago, common iron	2.00c to 2.15c

Hoops, Bands, Strip

Prices per pound f.o.b. mills

Hoops, Pittsburgh, under 3 in.	2.40c to 2.50c
Hoops, Pittsburgh, 20 gage, under 1 in	2.75c to 3.75c
Bands, Pittsburgh	2.40c to 2.50c
Hot rolled strip steel, Pittsburgh stamping quality	2.40c
Cold rolled strip steel, hard coils, 1½ inches and wider by 0.100-inch and heavier. base, Pittsburgh, Cleveland	4.15c

Chicago and Worcester, Mass. $3 per ton higher.

Cold Finished Steel

Prices per pound

Cold finished steel bars, drawn or rolled Pittsburgh, Chicago, carloads	2.80c
Less carloads	3.05c
Steel shafting, turned and polished Pittsburgh, Chicago	2.80c

Screw stock base Cleveland $1 higher; and Worcester $3 higher than Pittsburgh and Chicago.

Rails, Track Material

Standard bessemer rails, mill	$43.00
Standard open-hearth rails, mill	43.00
Relaying rails, St. Louis	27.00 to 32.50
Relaying rails, Pittsburgh	27.00 to 30.00
Light rails, 25 to 45, mill	1.80c
Angle bars, Chicago base	2.75c
Spikes, railroad, Pittsburgh	2.90c
Spikes, small railroad, 7/16-inch and smaller, Pittsburgh	3.20c
Spikes, boat and barge, Pitts.	3.25c
Spikes, railroad, Chicago	2.90c
Track bolts, Pitts. standard	3.90c to 4.00c
Track bolts, Chicago	3.90c
Tie plates, Pittsburgh	2.35c to 2.50c
Tie plates, Chicago	2.35c

Wire Products

To Jobbers in Carloads
Prices per pound

F.o.b. Cleveland and Pittsburgh base	
Wire nails	2.85c
Galv'd nails, 1-inch and over	5.10c
Plain wire	2.60c
Annealed wire	2.75c
Galvanized wire No. 9 gage	3.20c
Barbed wire, painted	3.30c
Barbed wire galvanized	3.55c
Polished staples	3.30c
Galvanized staples	3.55c
Coated nails, count keg	2.25c
Woven wire fencing (retailers) 12½ gage, 26-in. high 7 bars and 12-in. stays per 100 rods, f.o.b. Pittsburgh	$20.56

Joliet, DeKalb and Waukegan, Ill., $2 per ton over Cleveland-Pittsburgh base on products made there. Worcester, Mass., and Fairfield, Ala., $3 higher. Duluth $2 higher. Chicago delivered price $3 higher, Anderson, Ind., $1 higher.

Sheets

Prices per pound

SHEET MILL BLACK

No. 28, Pittsburgh base	3.50c to 3.60c
No. 28, Philadelphia, delivered	3.82c to 3.92c
No. 28, Gary, Indiana Harbor	3.70c
No. 28, Chicago, delivered	3.75c

TIN MILL, BLACK

No. 28, Pittsburgh base	3.60c
No. 28, Gary base	3.70c

GALVANIZED

No. 28, Pittsburgh, base	4.75c
No. 28, Philadelphia, delivered	4.92c to 5.07c
No. 28, Gary Indiana Harbor	4.85c
No. 28, Chicago, delivered	4.90c

BLUE ANNEALED

No. 10, Pittsburgh base	2.70c
No. 10, Philadelphia, delivered	3.02c to 3.12c
No. 10, Gary, Indiana Harbor	2.80c
No. 10, Chicago, delivered	2.85c

AUTOMOBILE SHEETS

No. 22, Pittsburgh, base	4.75c

Tin Plate

Prices per 100-pound box, Pittsburgh

Tin plate, coke base	$5.50

Gary, Ind. base 10 cents higher

Iron and Steel Pipe

Base Discounts Pittsburgh and Lorain, O. to Jobbers in Carloads

	Black	Galv.
1 to 3-inch, butt steel	62	50½
1 to 1½-inch, butt iron	30	13

Indiana Harbor, Ind., and Evanston, Ill., 2 points less and $4 per ton higher. Chicago delivered 2½ points less and $5 per ton higher.

Boiler Tubes

Less Carload Discounts—Carloads 4 Points Additional—f.o.b. Pittsburgh Mills

Steel 3¼ to 3½-inch	38½
Charcoal iron, 3¼ to 4½-inch	5
Seamless hot rolled, 3½ to 3¾-inch	35

Chain, Piling, Cut Nails

Prices per pound

Chain, 1-in. proof coil, Pitts.	6.25c
Sheet piling base, Pittsburgh	2.05c to 2.15c
Cut nails, f.o.b. mills	2.90c

Hot Rolled Alloy Steels

Price per pound, Pittsburgh base

S. A. E. Series—	
2300 (3½ per cent nickel)	4.75c to 5.00c
3100 (nickel chromium)	3.65c to 3.75c
6100 (chrome vanadium)	4.50c to 4.75c
6100 (Chrome vanadium spring)	4.00c to 4.25c
9250 (Silico manganese spring)	3.50c to 3.60c

Billets—4 x 4 to 10 x 10, gross ton at net ton bar price; under 4 x 4 to 2½ x 2½-inch $5 higher. Chicago base $2 higher.

Some Reaction in Scrap

Pittsburgh Prices Holding Well but Declines Up to $1 Met in Other Centers—Future Requirements Large and Situation Good

SCRAP PRICES, PAGE 306

Chicago, Jan. 20.—Iron and steel scrap has reacted, on the average, $1 a ton. This is regarded as the natural culmination of an advance extending over many weeks, failure of the Pittsburgh district to keep in step, and the immobility of pig iron and finished steel prices the past few weeks. With consumption continuing to increase, larger dealers believe another march upward will start in a week or two.

The highest paid for heavy melting steel by a consumer prior to the break was $20.50 to $20.75. One melter has just paid $20 for a small tonnage. It is said some dealers are offering steel at $19.50. As a general statement, dealers have scaled down their ideas of price about $1. There are indications that bear sentiment may depress prices still further before the market turns.

Melting steel has a spread today of $19.50 to $20. No. 1 wrought is $19 to $19.50, machine shop turnings $12 to $12.50, No. 1 machinery cast $21.50 to $22, and railroad malleable $20.50 to $21.

Cast Grades Advance

Boston, Jan. 20.—Cast grades of iron and steel scrap enjoy a better demand from foundries and most dealers have advanced machinery scrap 50 cents or more. Several cars of textile scrap have recently been sold at $22.50 delivered and No. 1 machinery scrap is quoted freely at from $20 to $21 delivered. Demand for heavy melting steel resulting from eastern steel works buying is gradually subsiding but new orders are in the making and prices hold firm. Some stove plate has moved to Pennsylvania at $12.50 shipping point. Trolley car wheels have sold at $19 delivered to a New England consumer. Cotton ties have been in demand at about $12 shipping point with skeleton scrap at $13. Machine shop turnings are without feature with the market from $13 to $13.50 shipping point. A sale of several cars of wrought pipe is reported at $14.

Easy At New York

New York, Jan. 20.—The iron and steel scrap market appears unsettled. Business is lagging and the outlook for a substantial gain is not as promising as a fortnight ago. In a few instances prices are easier, notably in railroad steel, turnings, and wrought pipe, these grades being off 25 to 50 cents a ton. Mixed borings and turnings, however, have been advanced 25 cents, dealers now paying $10.75 to $11.25, New York.

Buffalo Prices Hold Well

Buffalo, Jan. 20.—Following heavy purchases by the Bethlehem Steel Co. for its Lackawanna plant the heavy melting steel market has been placed on an actual instead of a largely speculative basis. Estimates of tonnage purchased by the Bethlehem company run as high as 35,000 tons, and the prices paid are said to have ranged from $19.50 to $20 with the latter figure probably nearer an average price. This purchase will cover Bethlehem's needs for 30 days or more, it is estimated. Buffalo dealers have taken some Wierton tonnage, for shipment from other points, around $22, it is understood. There has been inquiry for malleable from an Ohio melter who will pay $22.75 for tonnage. Buffalo dealers are holding this material for $21, in some cases, and are not anxious to accept this offer which represents a net of slightly less than $20.

Pittsburgh Holds Strength

Pittsburgh, Jan. 20.—Additional sales of heavy melting steel scrap to Warren, Steubenville and other Ohio points at $22.50, and one to a consumer nearer this territory at $22, keeps the spread $22 to $22.50. The fact that some users are depleting stock piles and continue to operate at 90 per cent or better, presages early additional buying and those quotations probably will remain for some time. Further proof of the strength of the market is disinclination of dealers to sell at their buying prices, as they did a few weeks ago. One nearby user today bid $21.50 on heavy melting steel; the seller quoted $22.50 and the prospective buyer made a counter offer to pay $22, but the deal was not arranged. Since a down-river consumer paid $22 for heavy melting steel, $20 for bundled sheets and $21 for compressed sheets, the latter two grades have been inactive. While rails for rolling have been sold at some points at $24, no higher than $23 has been paid at Franklin or Huntington. With the lone buyer of cast iron borings in this district out of the market and fully supplied, the price has weakened a trifle and $17.50 to $18 now is quoted. A sale of steel car wheels is noted at slightly above $24 and $24.50 was paid direct to a railroad recently for a tonnage. No. 1 cupola cast is strong at $20 to $20.50, the basis of last sales. Some buying in the immediate future is anticipated but it is doubted if any more of that grade can be found at less than $20.50 to $21.50. Steel axles are strong at $24 to $24.50 since a bid of $24.87 on a Norfolk & Western railroad offering failed to bring the award. Similarly high bids were registered on the other grades. A sale of railroad malleable is noted at $23.

Quiet Market in Cleveland

Cleveland, Jan. 20.—Iron and steel scrap trading has quieted down in this district following recent important buying on the part of steelmakers as reported previously. Apparently melters are well supplied and it will be unnecessary for them to enter the market for some time. However, shipments on contract are taken readily and in only a few instances are receipts being regulated. Embargoes

(*Continued on Page 262*)

Need Open-Hearth Steel

Scarcity in Pittsburgh District Spreading—Users Asked To Take Bessemer—Sheet Bars Sold at $40 in Valley—Market Tightens

SEMIFINISHED STEEL PRICES, PAGE 253

Pittsburgh, Jan. 20.—The shortage of open-hearth steel continues. Semifinished steel producers report they could easily dispose of tonnage of open-hearth steel if they had it to spare but the tendency is to hold it for their own use or to apply upon contracts already booked. Sheet bar customers in one or two instances have been prevailed upon to accept bessemer steel in lieu of open hearth and the same is true of some users of rerolling billets. The $40 price is minimum on sheet bars although perhaps if the material were available even higher prices would apply. As yet no formal quotations are out for second quarter deliveries but as high as $42.50 is talked about for that period.

Open-hearth rerolling billets, 4 x 4-inch, are at least $40 with some bessemer billets still available at $38. Forging billets are now at a $45 minimum and a few producers are thinking about quoting $48 on the next large inquiry to come out. Makers of wire rods are all sold up for the first quarter at least and the quoted level, $48, is unchanged. Shipments of skelp tonnage continue large in the aggregate on contracts and from time to time a new inquiry appears, only to be closed up quietly with regular sources of supply.

Valley Mills Sold Up

Youngstown, O., Jan. 20.—Reports that a good size tonnage of sheet bars was sold for western consumption by a Mahoning valley producer during the week could not be substantiated here today. District producers are not in a position to accept additional business for this quarter owing to their output already being absorbed either by way of contracts or intermill requirement. The current market is lacking in both inquiry and demand for billets, slabs or sheet bars. In case surplus steel develops producers of semifinished will name $40, Youngstown on sheet bars and small billets and $38.50, Youngstown, on slabs and billets 4 x 4 inches and larger. These prices producers have in mind for second quarter business. Despite the sold-up condition buyers have shown no interest to get second quarter requirements under cover nor have producers urged action in this direction.

French Billets Offered

Chicago, Jan. 20.—A French maker of small billets has been soliciting business here on the basis of $27, delivered Gulf or Atlantic ports, freight and dock charges paid. The delivered price in the Chicago district figures about $34. The last good sale of small billets by a Chicago maker was at $36 and the market has advanced at least $1 and possibly $2 since then. It is not known that any French billets were bought in Chicago but a Birmingham district user

is understood to have placed several thousand tons.

Small Billets Bring $41.50

Cleveland, Jan. 20.—Semifinished steel prices continue firm, although not much business is pending owing to the fact most users have covered. Some sales of 1½-inch billets during the week brought $41.50, Cleveland. The leading maker holds to a price of $40 on 4 x 4-inch billets, sheet bars and slabs. Several thousand tons of sheet bars are reported to have been booked by valley mills during the week at $40 valley. A number of small inquiries for sheet bars and billets make up a total of about 1500 tons pending.

Market Is Untested

Philadelphia, Jan. 20.—Billet sales are insufficient to test the market, rerollers are $37 to $38, and forging $42 to $43. Wire rods are $48. Some mills have advanced wire and nails $2 have let rod price remain unchanged.

Ferro Sells Higher

Some Tonnage Closed at $115—50 Per Cent Ferrosilicon Raised

FERROALLOY PRICES, PAGE 253

New York, Jan. 20.—Sales of moderate tonnages of ferromanganese continue to be made right along for first quarter shipment. This business probably ran into 1000 tons during the past week. As far as known, $115, duty paid tidewater, was obtained on all of this business.

Sales of spiegeleisen the past week aggregated about 400 tons. The market on this metal continues $31 to $33, furnace for the 20 per cent grade.

Some substantial contracts have been made for ferrovanadium at the published market. This represents a departure from the custom of alloy steel makers the past few years, as heretofore they had been buying mostly from hand to mouth. The other alloy and ore markets are quiet, following the recent closing of annual contracts. The only price change reported is an advance of $2.50 a ton in the market for 75 per cent ferrosilicon, to $147.50, delivered.

Spot Sales Dwindle

Pittsburgh, Jan. 20.—Spot sales of ferroalloys have dwindled. The introduction Jan. 13 of increased prices of $5 per ton on both English and domestic ferromanganese to $115 seaboard. was followed by the placing of a few contracts. Domestic sellers report the receipt of at least two orders from this district at the new figure involving slightly less than 500 tons. Middle interests representing English sellers made an effort to close some business at the former $110 figure but are understood to have been unsuccessful in having it accepted by their principals. Some German ferromanganese bought before the rise is offered at lower prices.

Spiegeleisen is unchanged at $33 to $34 furnace, on the 19 to 21 per cent material, with spasmodic interest shown. Other alloys are dull. The Latrobe Electric Steel Co. is understood to have closed on its carload of ferrochrome. Prices on 50 per cent ferrosilicon are unchanged at $85 but a further advance to $90 is scheduled to take effect Feb. 1.

Coke Market Is Relaxing

Operators Unable To Maintain High Quotations Start To Reduce Output—Furnaces Delay Second Quarter—Foundry Fuel Weaker

COKE PRICES, PAGE 253

Pittsburgh, Jan. 20.—Beehive coke still is floundering. Oven operators, however, appear to realize the present consuming rate is not sufficient to maintain high quotations. Some are starting this week to curtail output. Coke producers still want prices above $5 for furnace fuel for the second quarter. Some quote $5.50. Users want prices below $5, and purposely defer closing for the second quarter. Steel interests recently in the market now claim to be fully protected pending the reaching of some common ground. With distress tonnages on tracks, spot prices again have receded, $3.85, $3.90, $4.00 and $4.10 being typical figures. Sales of 15 cars at a time are noted at that minimum. One involving 15 to 50 carloads brought $3.90. Another involving two carloads daily for three weeks as closed at $4.10. The Columbia Chemical Co. is negotiating for 60 days' requirements of medium sulphur coke. The United States Metal & Refining Co., Chrome, N. J. is understood to have closed 1500 tons of the same grade around $3.50. Some producers are maintaining $4 and $4.50 quotations on extended deliveries. Foundry coke is weak. Efforts to obtain $5.25 and $5 are unsuccessful. Sales are noted at $4.75 and $5. Premium brands still are held at $5.50, or slightly higher. Sales are few.

Production of coke in the Connellsville region for the week ended Jan. 10 was 206,240 tons, as compared with 188,580 tons the preceding week, according to the *Connellsville Courier*.

Prices Are Easier

New York, Jan. 20.—The beehive foundry coke market has not been very well supported by demand in this territory and prices are easier. The range on this fuel for spot shipment now is $5 to $5.50, Connellsville, with some special brands bringing higher. The largest inquiry is from one of the public service corporations in the metropolitan district which wants 14,000 tons of so-called medium sulphur coke for shipment over the whole of 1925. On standard by-product foundry coke the market continues at $10.41, delivered at Newark and other Northern New Jersey consuming points.

Coke Deliveries Heavy

Cincinnati, Jan. 20.—Coke deliveries are meeting with minimum interference with the result that there is a heavy movement from the ovens. The Ashland By-Product Coke Co., Ashland, Ky., is shipping its current output of all grades and taking some tonnage from stock. Practically all ovens are being liberally supplied with cars and producers are well caught up with deliveries. Users manifest little interest in their requirements beyond 30 days. A slight improvement is noted in January specifications for foundry and furnace grades. A number of Ohio blast furnaces have closed contracts during the past ten days. Prices continue firm with some slight advances noted. Recent sales of Wise county foundry coke have been made on a basis of $5.25 ovens, although some grades have brought as high as $5.50 and others as low as $5 ovens. New River foundry coke ranges from $8.50 to $9, ovens.

Foundry Demand Brisk

St. Louis, Jan. 20.—Demand for all grades and sizes of coke continues active. Prices are firm. There is a brisk call for foundry coke, and local by-product makers report an excellent volume of contracting for balance of year requirements. A majority of foundries however, are continuing the policy of short-time commitments. There is some pressure for sales of beehive coke from the East, but virtually nothing is being taken here. An Iowa water gas company has engaged 3000 tons of coke for shipment through the first half, and an Illinois user took 2400 tons for the same period.

Southern Market Strong

Birmingham, Ala., Jan. 20.—All coke manufactured at present is finding a ready demand. The Woodward Iron Co. has let a contract for rebuilding 40 of its by-product ovens. The Sloss-Sheffield Steel & Iron Co.'s by-product plant at North Birmingham is in full operation. Quotations for coke are firm at $4.50 to $5.

Tin Plate Demand

Indicates Operations at 90 Per Cent for First Half

TIN PLATE PRICES, PAGE 253

Pittsburgh, Jan. 20.—Judging from the tin plate business already in hand and from that known to be immediately forthcoming, the industry will be able to operate on the basis of at least 90 per cent for the first half. Before the end of February the American Sheet & Tin Plate Co. doubtless will be upon an 87½ or 90 per cent basis, particularly if some foreign business materializes. It now is averaging 77 or 78 per cent with about 80 per cent of tin mills engaged. Six of its plants are running 100 per cent. including the large plant at Gary, Ind. Several independent producers located in this immediate vicinity and in Ohio are operating full. All large tin plate users have contracted for their supplies for the first half, hence no extensive inquiries are pending. One of these container manufacturers delayed closing final arrangement until about two weeks ago but already is asking for expedited deliveries. Prices while not formally announced for second quarter are unchanged at $5.50 per base box of 100 pounds, f.o.b. Pittsburgh, and apply extensively on the second quarter business accepted and on the books.

Close Rolling Schedules

Philadelphia, Jan. 20.—Tin plate specifications are so heavy all makers have practically closed their rolling schedules for the next six weeks. The market is firm.

Expect Advance in Bars

Second Quarter Tonnage Likely To Be at Higher Prices—Mills Well Booked and Specifications Being Filled in Good Volume

BAR PRICES, PAGE 253

Chicago, Jan. 20.—Specification and production are more prominent factors in the soft steel bar market than new business. While buying is good, it is below the level for December and reflects the usual January status; first quarter buying is past and second quarter has not yet begun. Specifications are coming forward at a faster rate than production, despite the increase in operations. The two leading makers are operating as near 100 per cent on bar mill products as is possible. The leading interest continues to take business at 2.10c, Chicago, but by reason of its booked-up condition deliveries have backed into the second quarter. The leading independent has announced an advance of $2 per ton to 2.20c, Chicago, for second quarter delivery or $2 per ton below its second quarter price on plates and shapes.

Several bar iron makers now have a 60-day backlog to cushion them. One interest claims 2.15c as its minimum and another talks of a range of 2.15c to 2.25c, but a spread of 2.00c to 2.15c, Chicago, seems apt.

One maker of rail steel bars hints of a rise of $2 shortly. Business still is being taken at 2.00c, mill, or 2.03c, Chicago. All rail steel mills have fair to good backlogs, and double-turn operations prevail in several.

Market Active At Boston

Boston, Jan. 20.—Bar sales during the past week showed a marked improvement over the previous week. Prices are firm at 2.10c Pittsburgh or 2.465c delivered. One seller reports sales this year at a rate which would bring the January total to the highest in five years.

Holiday Lull Is Ended

New York, Jan. 20.—The lull in the steel bar market following the holidays has been succeeded by fairly active demand. Consumers and jobbers are specifying liberally against first quarter contracts and the business is all that the mills expected. In addition there is a fair total of new business. In some cases mills are turning down new business, saying that their full books do not justify them in accepting anything from other than regular customers. Some mills now will not do less than 2.10c base Pittsburgh and will not accept anything at this figure beyond the first quarter. In some instances 2.20c has been quoted on some first quarter tonnage. The 2.00c base Pittsburgh price has not yet entirely disappeared.

Specifications Again Generous

Pittsburgh, Jan. 20.—Generous specifications again are being received by merchant steel bar sellers following a short lull due to inventory. Resumption commenced the middle of last week, and this week is starting strong. In the case of a large steel maker with a dozen or more contracts in this immediate vicinity only one of the 12 customers is holding up specifications and the others have filed ahead of time. Jobbers, cold finishers, automobile spring manufacturers and other users are active in taking out their commitments and 2.10c is firm with 2.20c or 2.25c already being talked for second quarter.

New Business Is Lighter

Philadelphia, Jan. 20.—Steel bar specifications are good. Some new business is being booked but the total is not sufficient to maintain 2.10c price. The market continues 2.00c to 2.10c, Pittsburgh. Iron bars continue to bring mill prices equivalent to 2.28c to 2.32c, delivered Philadelphia.

Conditions Are Mixed

Cleveland, Jan. 20.—Some variations in conditions in the market are being experienced by different sellers. While commitments are heavy on all sides, some mills are finding incoming specifications are not so brisk while new business is comparatively slow. Other mills and this includes some of the largest ones, report that not only are their specifications keeping up but that some buyers are needing more tonnage for first quarter than they originally had provided for. Despite this mixed condition, steel bar prices are very firm at 2.19c, Cleveland, equivalent to 2.00c, Pittsburgh. Bands are better established at 2.50c, Pittsburgh, and hoops of ordinary run are stronger at 2.50c to 2.60c, Pittsburgh.

Current Ordering Rate High

Pittsburgh, Jan. 20.—Cold-finished bar producers are operating on an 80 per cent basis. On some sizes deliveries begin to show a similar condition to that prevailing among merchant bar mills where shipments on some sizes are being deferred several weeks. Consuming lines are atcive as buyers of cold-finished material and the automotive industry in some departments has received considerable impetus. Current business is bringing 2.80c, f.o.b. Pittsburgh district mills, and with reports of higher prices on merchant steel bars for second quarter, cold finishers also are talking of an advance.

Nut, Bolt Business Lags But Price Firm

NUT AND BOLT PRICES, PAGE 308

Pittsburgh, Jan. 20.—Additional buying of nuts, bolts and rivets is active but the aggregate for January so far is not so heavy as was anticipated. New business and contract specifications keep producers fairly active and operations average 65 to 70 per cent of capacity. Prices are firm on the quoted bases, at 50, 10 and 10 per cent off on large machine bolts. Rivet business still is good as far as specifications against contracts are concerned. The 2.60c price continues to apply.

Firmer Prices Reflected

Philadelphia, Jan. 20.—Bolts, nuts and rivets reflect firmer prices than in a long time. Large bolts generally are being sold at 50, 10 and 10 off, while rivets are going at 2.60c to 2.65c, base Pittsburgh. Bolt specifications are slow owing to large quantities taken in December. New demand also is slow.

Demand Slightly Easier

Cleveland, Jan. 20.—Bolt and nut makers report a slight letup in buying due to the fact most consumers have filled their requirements. Despite this fact, however, the order volume continues fairly heavy and prices are firm at 50, 10, and 10 per cent off for large bolts.

Demand for rivets has been good and practically no shading of 2.60c is noted. Practically all contracts for first quarter delivery have been booked.

January Proving Light Month

Chicago, Jan. 20.—New business in bolts and nuts is not comparable to that of December, but this was expected in view of the rush of users to get under the wire before the first quarter price advance. Automobile makers at Detroit continue to be most conservative in their buying. Production has not been curtailed. The market is at the level of 50, 10 and 10 off for large machine bolts.

Hoop Demand Is Good

HOOP PRICES, PAGE 253

Pittsburgh, Jan. 20.—Business has been particularly bright for some time in hoops and bands and this condition continues. In some instances specifications were delayed by inventory, but this lull has proven only temporary. Prices are unchanged and firm at 2.40c to 2.50c and in several instances 2.50c has been the minimum quotation.

Strip Demand Is Heavy

STRIP PRICES, PAGE 253

Pittsburgh, Jan. 20.—Consumers of strip steel are resuming specifying activity. Some new business is also coming in and business has improved during the week. Operations continue about 70 per cent of capacity and shipments for the first half of the month were more than 75 per cent of capacity. Some business has been lost because makers could not make prompt deliveries. Prices continue firm. At present 4.15c is quoted on cold and 2.40c on hot strips.

Firmer Tone in East

New York, Jan. 20.—The cold rolled strip steel market here reflects a decidedly firmer tone. Three weeks ago sales still were being made as low as the equivalent of 3.60c, base Pittsburgh. More recently the minimum was 3.90c. Nothing lower now is heard than 4.00c base Pittsburgh, and attempts have been made by some makers to obtain 4.30c. Consumption is heavy. There not only are good specifications on first quarter contracts, but a fair total of new business is being placed

Pig Iron Marks Time

(*Concluded from Page 252*)

Sheffield Steel & Iron Co. will blow in its seventh blast furnace by Feb. 1. Much iron is being moved. Inquiries

indicate more iron will soon be purchased. A local producer is selling the output of one of its furnaces making basic to a steel company in the district. It is understood the contract will continue for some time. A second furnace in the Florence-Sheffield section of the state will be blown in soon by the Sloss-Sheffield company and this forecasts shipment of a larger amount of iron into the Middle West.

Sales Improving at Philadelphia

Philadelphia, Jan. 20.—Pig iron sales are improving in this territory, with sales during the past week aggregating from 12,000 to 15,000 tons, some for first and some for second quarter delivery. One producer evidently sold some tonnage to regular customers, the price being $23.50, base furnace, for foundry iron. The general market continues generally at $24, base furnace, plus silicon differentials of 50 cents to $1 a ton, for No. 2X, plus an additional $1 to $1.50 for No. 1X. In some cases second quarter iron has sold at an advance of $1 over first quarter, other sales being at the same price. Some resale iron and also some foreign iron figured in the past week's business. A plant at Chester, Pa., bought 500 tons of English low phosphorus iron at $26, duty paid tidewater. Sales of domestic low phosphorus iron aggregated from 500 to 1000 tons at unchanged prices. Virginia foundry iron continues $24 to $25, base furnace, plus 50 cents for silicon differentials.

Sheet Changes Accepted

According to advice from Maj. A. E. Foote, division of simplification of the department of commerce, acceptances received by the division from producers, distributors and consumers are sufficiently liberal to warrant the statement that steel sheet simplification has been accepted by the entire sheet industry. This means the Atlantic City program will go into effect immediately.

Resume Merger Hearings

Washington, Jan. 20.—The federal trade commission will resume hearings in the Federal building, Philadelphia, on the merger of the Bethlehem Steel Co. and Lackawanna Steel Co., Jan. 29. The commission is to call witnesses for the hearings.

Alan Wood Changes Staff

F. C. Milliken, for many years in the general sales department of Alan Wood Iron & Steel Co., Philadelphia, has been appointed manager of billet sales for that company. W. H. Dickson, also of long connection with the Alan Wood company has been made Philadelphia district sales manager. Leroy Richards and H. H. Neel will work in conjunction with Mr. Dickson in handling the Philadelphia sales. Mr. Richards had been representative at Los Angeles for the Alan Wood company and Mr. Neel formerly was with the Midvale Co., Nicetown, Philadelphia.

American Abrasive Metals Co., New York, has increased its capital from $200,000 to $500,000.

New Plate Demand Slower

Leading Interest at Chicago Books 16,000 Tons of Car Steel in Week—Makers Talking of Higher Prices for Second Quarter

PLATE PRICES, PAGE 253

Pittsburgh, Jan. 20.—Sold up solidly for the first quarter, two or three platemakers are not entertaining any new inquiries. When old customers seek to add small tonnages to commitments, these sometimes are accepted and the rollings worked in. Fabricating shops here and in the Mahoning valley are perhaps busier in the plate working departments than in the structural shape departments because tank, boiler and barge specifications have been fairly heavy. While there has been a little lull in new buying. The tendency in some directions is to quote a 2.10c minimum but the 2.00c figure has not entirely disappeared. Already a 2.20c or 2.25c figure is being talked of as a second quarter possibility.

New Business Fair

New York, Jan. 20.—A good many plate requirements are being shipped on account of old orders, which accounts for the fact that new business is of only fair proportions. Most makers now are asking 2.10c, base Pittsburgh, on carload business but it still is possible to place orders at 2.00c base Pittsburgh. On less-than-carload sales 2.25c has been done in numerous instances. It is estimated that eastern plate mills now are operating at 60 to 75 per cent of their capacity. The largest new inquiry here is from New port News Shipbuilding & Dry Dock Co., Newport News, Va., which is taking prices on several thousand tons of steel for a boat on which it is bidding.

Buyer On Lighter Scale

Cleveland, Jan. 20.—Quieter conditions of buying are apparent in plates but prices are holding at the range recently established. On tank plates some large mills still are holding 2.19c, Cleveland, or 2.00c, Pittsburgh. Some smaller mills in this locality are selling on this base, usually for the higher qualities such as boiler and fire box steel. Other mills which normally serve this territory have good bookings and are holding at 2.10c, Pittsburgh. Some of them with limited capacity recently have tried to buy plate tonnage from other producers to fill their orders. A freighter ordered from the Manitowoc Shipbuilding Co. by the Rockport Steamship Co. will require 3000 tons. Three other boats recently have been in some stage of negotiation with lake yards. Inquiry for 10 oil stills now o nthe market calls for 250 to 300 tons while 300 to 400 tons will be required for some locomotive work pending in this territory. Some possibilty exists that the 14,000 tons for a water line for St. Louis which is expected to be closed this week, will go to a fabricator in this district.

Fewer Tanks Pending

Chicago, Jan. 20.—One maker of plates booked about 1500 tons for oil storage tanks last week but the other maker was awarded a negligible tonnage. The leading interest placed about 16,000 tons of car steel, mostly plates on its books last week. While the market on plates is 2.20c, Chicago, one maker may announce second quarter prices shortly at an advance of possibly $2 a ton.

Good Specifications Issued

Philadelphia, Jan. 20.—Specifications on first quarter plate contracts are good. New demand is fair. Eastern mills are operating at 60 to 80 per cent. The market is 2.00c to 2.10c, Pittsburgh.

Railroad Wants To Buy

Cincinnati, Jan. 20.—The Louisville & Nashville railroad is in the market for 500 tons of plates and sheets for prompt shipment.

PLATE CONTRACTS PLACED

3000 tons, Great Lakes freighter for Rockport Steamship Co., to Manitowoc Shipbuilding Co.

1500 tons, blast furnace, shell, stoves, etc., for the Hudson Valley Coke & Products Corp., Troy, N. Y., to the Riter-Conley Co.

1000 tons, 1,000,000-cubic foot gas holder for Detroit Edison Co., Detroit, to Stacey Mfg. Co.

850 tons, 100,000-cubic foot single lift unit at Port Huron, Mich., gas holder, to Stacey Mfg. Co.

420 tons, three barges, 120 x 32 x 8 feet for the United States engineers, Pittsburgh, to the American Bridge Co.

162 tons, one 2500-barrel self-propelled barge for Associated Oil Co., San Francisco, to Hanlon Drydock & Shipbuilding Co.

110 tons, 66-inch penstock for Lingle power plant, North Platt project, bureau of reclamation, Denver, Colo., to Hamler Boiler & Tank Co.

PLATE CONTRACTS PENDING

6000 tons Estuary Tube, Oakland Calif.; bids will be received shortly.

850 tons, pipe line, Port Angeles, Wash.; bids in. Jan. 28.

480 tons, three gas generators for Pacific Gas & Electric Co., San Francisco, bids being received.

400 tons, small tanks for Pan American Petroleum Corp.; Los Angeles; bids in.

375 tons, three 80-foot barges; bids close Feb. 14 for United States Engineers, Pittsburgh.

125 tons, a 37,000-barrel tank for Associated Oil Co., San Francisco; bids being received.

Nova Scotia Steel Output Greatly Reduced

Montreal, Can., Jan. 19.—While steel ingot production in Novia Scotia averaged 400,000 tons a year for the ten years preceding the war, the output in 1924 was only 186,00 tons. This compares with 297-842 tons in 1923. Production of pig iron by the Dominion Iron & Steel Co. division of the British Empire Steel Corp., totaled 45,339 tons in 1924 compared with 69,832 tons in 1923. Steel blooms in 1924 amounted to 45,768 tons against 93,219 tons in 1923. The rail output, however, increased from 47,034 tons in 1923 to 74,061 tons in 1924. The production of wire rods in 1924 totaled 15,619 tons; wire 7346 tons; wire nails and staples 7354 tons; wire fence 3749 tons; steel bars 3788 tons.

The corporation's Nova Scotia Steel & Coal Co. produced 23,914 tons of bars, angles and channels in 1924 compared with 34,072 tons in 1923. The output of plates dropped from 9350 tons to 1348 tons in 1924. The other principal items of production in 1924 were fish plates and splice bars 5961 tons, and steel axles 6844 tons.

Concrete Buying Better

Large Roadwork Programs Beginning To Appear, Pennsylvania To Close Shortly on 2500 Tons—Inquiries More Numerous—Prices Strong

REINFORCING BAR PRICES, PAGE 253

Pittsburgh, Jan. 20.—One of the most unusual contracts placed recently in the concrete reinforcing bar market was that of 1100 tons for the Pittsburgh stadium to the Carnegie Steel Co. Specifications call for the Carnegie company furnishing bars at 1.70c, base Pittsburgh, as a donation to the project. The contract for fabricating the bars still is pending.

Bids are to be opened this week on numerous road contracts at Harrisburg, involving about 110 miles. Between 2500 and 3000 tons of reinforcing concrete bars are involved in the propositions to come up Jan. 23 and 24 numerous small industrial jobs are appearing. This activity forms a contrast to recent quiet weeks and is considered an important gage of heavy business to come in the early spring. Prices are unchanged at 2.10c although one or two jobs recently taken at a distance from Pittsburgh by a Pittsburgh interest have figured back to a base of less than 2.00c.

Lull Noticed At Boston

Boston, Jan. 20.—Sales of reinforcing bars at Boston during the past week have been quiet, but fabricators have good tonnages on their books, and much work is in prospect. Prices are firm.

Roadwork Projects Appearing

Buffalo, Jan. 20.—Little activity exists in reinforcing bars. No large contracts have been placed here and contractors are deferring purchases for spring consumption. Bids on a large number of Pennsylvania highways are being taken Feb. 6 and some New York projects will reach contract stage soon after that time. Prices remain at 2.10c, mill, and 2.35c to 2.60c for stock shipment.

Quiet Continues Unchanged

Cleveland, Jan. 30.—Quiet rules supreme in the local concrete bar market, with some fabricators booking less than 100 tons for the week. Warehouses at present are selling more concrete bars in the aggregate than mill representatives. Roadwork programs are being contemplated but no definite requirements are out. New billet bars are firm at 2.29c Cleveland or 2.10c Pittsburgh. Rail steel bars are 1.90c, mill, and are untested. Bars from stock are firming at 2.50c Pittsburgh and 3.00c to 3.10c, Cleveland.

Orders Still Difficult To Close

Chicago, Jan. 20.—Actual reinforcing bar awards are small compared with the large volume of pending business. Contractors are slow to close more because of difficulties of financing than on account of price or other considerations. The general contract for three additional sections of the South Water street double-decking project is understood to go either to the Great Lakes Construction Co. or the Midwest Construction Co. It is stated that the McLennan Construction Co., 360 North Michigan avenue, has definitely received the contract for the South Water Street Market Trust's commission market, requiring 3300 tons of bars; these bars probably will be bought on a pound basis. The warehouse price on reinforcing bars, carloads, is 2.60c.

Demand Light; Prices Firmer

Cincinnati, Jan. 20.—Practically all of the reinforcing bar business now developing in the Cincinnati territory requires from 50 to 75 tons. This business adds up well in the aggregate. Prices are firm on the mill basis of 2.10c, Pittsburgh. One fabricator recently took a few small jobs upon its quotation of 2.00c, but this figure was not generally followed and now is understood to be withdrawn.

CONCRETE CONTRACTS PLACED

Awards this week	**3,543 tons**
Awards last week	**4,565 tons**
Awards two weeks ago	**6,055 tons**

950 tons, terminal warehouse, China Basin for San Francisco harbor board, to Edw. L. Soule Co.
620 tons, Springfield, Ill., waterworks, to Laclede Steel Co.
600 tons Dumbarton bridge, San Francisco, to Edw. L. Soule Co.
400 tons, California Baking Corp. plant, Twelfth and Mission streets, San Francisco, to W. S. Wetenhall Co.
225 tons, wharf for Alaska Packers association, Alameda, Calif.; to Edw. L. Soule Co.
210 tons, apartment on Lakeside drive, Oakland, Calif., to Edw. L. Soule Co.
200 tons, Dudley-Stone school, San Francisco, to W. S. Wetenhall Co.
138 tons, bridge over Pacific Electric railroad crossing on McAllister street, Los Angeles, to unknown jobber.
100 tons, municipal building at Morgantown, W. Va., to the Kalman Steel Co.
100 tons, Denke garage, San Francisco, to Gunn, Carle & Co.

CONCRETE CONTRACTS PENDING

3300 tons, buildings for South Water Street Market Trust; general contract to McLennan Construction Co., 360 North Michigan avenue, Chicago.
2750 tons, involved in 110 miles of state road work to be let at Harrisburg, Pa., this week.
2384 tons, Ross Island bridge, Portland, Oreg.; county commissioners having plans redrawn for structural steel construction.
2000 tons, navy yard, Bremerton, Wash.; bids being received.
1100 tons, Pittsburgh stadium, Pittsburgh, to Carnegie Steel Co. Stone & Webster, New York, engineers. Contract for fabrication still pending.
500 tons, warehouse at Pittsburgh for the Standard Sanitary Mfg. Co.; bids now being taken.
500 tons, addition to Furniture Mart, Chicago; redesigned from all reinforced concrete to structural steel construction. Wells Bros. Construction Co., 53 West Jackson boulevard, Chicago, general contractor.
400 tons, building for Pan American Petroleum Corp., Fifth avenue, Oakland, Calif.; bids will be received shortly.
400 tons, Elks club, Oakland, Calif.; bids being received.
400 to 600 tons, Carquinez Straits bridge, San Francisco; bids in Jan. 25.
335 tons, two school houses for Chicago board of education; general contract to Lind Construction Co., 6404 South State street, Chicago.
250 tons, White Motor Co., Twelfth and Mission street, San Francisco; bids being received.
250 tons, building at Eureka, Calif.; bids in Feb. 3.
135 tons, Groten building, Cincinnati; pending.
127 tons, bars and shapes for railroad crossing on highway near Oakland, Oreg., for Oregon state highway commission; bids in.
125 tons, garage on Bush street, San Francisco; bids being received.
100 tons, Chinese Y. M. C. A., San Francisco; bids being received.

Pipe Demand Heavy

From Building Trade—Line Pipe Orders Fair—Cast Grade Quieter

PIPE PRICES, PAGE 253 AND 308

Pittsburgh, Jan. 20.—Buying and specifying in oil country pipe has reached a dull period. Orders for line pipe, etc., from the Mid-Continent fields keep up fairly well, but demand for oil well material is slight from the winter-bound territories such as Wyoming and Kansas. This lack is made up by continued good business in lapweld and buttweld standard full weight merchant pipe. This indicates that good building construction programs still are under way and the jobber demand for pipe as well as demand from users direct continues on a high plane. Considerable gas pipe lately has been bought although no extraordinarily large order has been placed since that of the Hope Natural Gas Co., which while credited to the National Tube Co., is being shipped out by the Youngstown Sheet & Tube Co.

Wrought iron pipe continues to show considerable life and each succeeding month's aggregate order receipts are larger than those of the month before. The A. M. Byers Co. has issued a 4-page card on which compound discounts are reduced to simple discounts for the convenience of its customers.

Private Buying Unusually Heavy

New York, Jan. 20.—The local department of water, gas and electricity is engaged actively in compiling its yard requirements of cast iron pipe, involving several thousand tons but has not yet issued specifications. Municipal inquiry generally is still lacking. Private demand is unusually good for this season. One large maker has been unable to pile up stocks. Prices are firm.

Not Holding To $42

Chicago, Jan. 20.—Recent public lettings of cast iron pipe indicate that all makers are not firm on the quotation of $42, Birmingham, and that a range of $41 to $42, Birmingham, or $49.20 to $50.20 Chicago applies on pipe 6-inch and over. Milwaukee is opening bids on 3000 tons and Chicago on 800 to 1000 tons. Considerably more business appears to be developing now than at this time in December. Detroit has just placed 4600 tons of pipe and will open bids later this month on between 4000 and 5000 tons additional.

Southern Market Strong

Birmingham, Ala., Jan. 19.—The cast iron pipe market in the Birmingham district is strong, and manufacturers of gas and water pipe have booked considerable business for future delivery. Winter buying has been good. Quotations are still on the $40 base, 6-inch and over.

CAST IRON PIPE PLACED

14,100 lineal feet of 4 to 12-inch pipe for Janesville, Wis., to United States Cast Iron Pipe & Foundry Co.
4600 tons, Detroit; 2600 tons to James B. Clow & Sons and 2000 tons to the United States Cast Iron Pipe & Foundry Co.
1500 tons, Saginaw, Mich., to Glamorgan Pipe & Foundry Co.
600 tons, 6 to 36-inch cast iron pipe for the Hud-

son Valley Coal & Coke Co., Troy, N. Y., awarded through the Foundation Co., 120 Liberty street, New York, to R. D. Wood & Co.
250 tons, Appleton, Wis., to the National Cast Iron Pipe Co.

CAST IRON PIPE PENDING

2200 tons, 6 to 18-inch class B and C pipe for Newport Beach, Calif.; Claude Fisher received general contract. Pipe not yet placed.
777 tons, 4 to 12-inch class C pipe for Anaheim, Calif.; award will be placed on Jan. 23.
544 tons, 4 to 10-inch class B pipe for the Corp. of Point Grey, Kerrisdale, B. C.; bids in.
325 tons, 2 to 12-inch class B pipe for Wapato, Wash.; bids in.
325 tons, 6 to 10-inch, Wetumka, Okla.; bids in Jan. 21.
215 tons, 4 to 8-inch class B pipe for Sacramento, Calif.; bids in.
125 tons, special castings, Milwaukee; bids close Jan. 23.
Tonnage unstated, 8-inch pipe, Springfield, Mo.; bids to be taken shortly.

See Wire Advance

Upward Move Expected and Some Independents Ask More

WIRE PRICES, PAGE 253

Pittsburgh, Jan. 20.—Almost every form of wire is in good demand. Mills continue to operate slightly over 70 per cent of capacity. Miscellaneous wire products are being liberally specified by jobbers on 60-day contracts and by manufacturers on first quarter commitments. The Bethlehem Steel Corp. is getting its new wire mill at Sparrows Point, Md., into action. Cement-coated nail specifications from potteries, furniture manufacturers and other users are heavy. The open market quotation on the latter is firm at 2.25c. Plain wire is quoted at 2.60c and wire nails at 2.85c. In connection with the latter increased talk of a $3 advance is heard which would bring nails to a 3.00c basis for the second quarter.

Some Quote Higher Prices

New York, Jan. 20.—Some independents now are asking 2.70c base Pittsburgh for plain wire and 2.95c for nails. The price of the leading interest, however, still is 2.60c for wire and 2.85c for nails and it is easy to place tonnage at that level. A feature of the market is that jobbers here are selling at a scant margin in some instances and it is not unusual for jobbers to make sales on the basis of 2.85c base Pittsburgh.

Wire mills in some instances are complaining of shortage of skilled labor and say their order books would permit greater production if men were available. Current production is 70 to 80 per cent of capacity.

Reports are Conflicting

Chicago, Jan. 20.—While independent makers of wire and nails have not felt much improvement since the holiday lull, the leading interest claims to have received a good run of business the past week. This interest states that jobbers are commencing to stock in anticipation of spring requirements in the rural markets. The railroads have been fair buyers of nails the past week. A report that a $2 rise is impending is in circulation among consumers. Some price irregularities are reported but delivered prices in general figure back to 2.70c, base Joliet and Waukegan, on plain wire and 2.95c on nails.

Sheet Demand Picking Up

Specifications and New Orders Developing Larger Proportions After Lull—Valley Prices Show Some Irregularity

SHEET PRICES, PAGE 253

Pittsburgh, Jan. 20.—While during the first two weeks in January something in the way of a lull settled upon the sheet industry, since the middle of last week specifications again have been active against contracts and new orders have been more numerous. This pick-up is credited to the finishing up of the inventory and annual financial statement time, and while with some this period will last awhile longer, it is understood to be well over for another six months or a year. Sheet demand at present is well diversified. Operations are on an 85 per cent average. A few nearby mills have been operating 75 per cent but others have been in excess of 90 per cent, or practically full. The American Sheet & Tin Plate Co. is operating practically 88 per cent of capacity, with its plate and jobbing mills for which considerable car business in blue annealed sheets lately has been booked, working 100 per cent. The blue annealed sheet price is firm at 2.70c. Some additional car business is in sight and more orders of this character will probably materialize in the near future. These will involve considerable galvanized sheet business. Other galvanized sheet demand is good and there is no price cutting. Increased costs because of high spelter with quotations around 8 cents, dispels any tendency to offer concessions under the 4.75c figure. Several producers, including a large maker at Youngstown, are not accepting any more galvanized sheet business for the first quarter. The price on full finished automobile sheets, 4.75c, is firm except for reports emanating from a small group of buyers claiming to have been able to secure some slight price concessions of $1 or $2 per ton. Makers holding firmly to the 4.75c, figure, however, report no difficulty in obtaining large orders for tonnage. Several large automobile manufacturers are resuming upon advanced schedules. One or two prominent automobile manufacturers expect to treble their output of closed cars and already have commenced to make commensurate demands upon their body makers; the latter are increasing their demands likewise upon the sheet manufacturers. It is only in connection with black sheets that price cuts still appear, and then only from three or four small producers who are disinclined to operate their galvanizing departments or else have none at all and are concentrating upon the disposition of black sheets. The regular market is 3.60c, concessions taking the price down as low as 3.50c.

Prices More Irregular

Youngstown, O., Jan. 20.—Cross currents are beginning to appear in sheet prices. One large consumer of black sheets recently was successful in obtaining about 300 tons of two sizes of black at 3.50c. While this tonnage was of tin mill sizes some consumers are using the transaction as a wedge to line up small tonnages of black in sheet mill sizes at the same levels. It is evident 3.50c still is available on black in certain districts. Success in placing business at this figure, however, depends upon the number of sizes in the specification, the tonnage and the condition of the mill's order books. A slight disutrbance also is enconutered in the galvanized market due more or less to a few stock lists put into circulation. Available tonnages in odd sizes and various gages and shop worn stock are offered at 4.60c for immediate shipment. These have led some customers to bring pressure on their mills for a revision of price of tonnage on order. Blue annealed is firm at 2.70c. Inquiry for all grades of sheets has tapered off. This is attributed by makers to the fact the majority of consumers are under cover for this quarter. While specifications are coming out the volume is not reaching the proportion anticipated by producers earlier in the year. As a result most mills are urging consumers to forward specifications at a better rate so that rolling schedules can be determined a week or ten days in advance. The majority of sheet makers in this district, however, are quoting black at 3.60c, galvanized at 4.75c and blue annealed at 2.70c. A survey of conditions in the Detroit district reveals that the majority of automobile producers are buying sheets as they need them. Excess stocks are lacking in numerous plants. High grade sheets are quoted at 4.75c although buying in volume is lacking.

Specifications Below Expectations

Philadelphia, Jan. 20.—Sheet specifications are better, although not so good as expected. Quotations are best in blue annealed which are fairly firm at 2.70c base Pittsburgh, with 2.80c done occasionally for small lots. It is easy to buy black sheets for early shipment at 3.50c and galvanized at 4.60c to 4.65c, Pittsburgh.

New Demand Is Slow

Buffalo, Jan. 20.—Sheet inquiry has been slow for the past ten days but previous bookings justify production at the high levels established in December. Buffalo mills are operating at about 85 per cent of capacity. Prices are firm at 3.60c, Pittsburgh for black and 4.75c for galvanized. The Seneca Iron & Steel Co. new mills will not be in production before the third quarter.

Expect Second Quarter Prices

Chicago, Jan. 20.—Second quarter prices on steel sheets may develop shortly and the general belief is that they will be stepped up $2 over the present quotations of 2.80c, base Gary and Indiana Harbor, for blue annealed, 3.70c on black and 4.85c on galvanized. Barring some fill-in tonnage, local mills are practically sold for this quarter and production is well up toward capacity.

Mills Near Completion

New York, Jan. 20.—The National Tube Co.'s large new plant at Gary, Ind., is to begin production of steel tubing for the market early in February. The installation includes five buttweld and four lapweld pipe mills and a seamless tube mill.

Shape Contracts Heavy

New York Insurance Building Takes 26,000 Tons—1924 Bookings Total 2,048,200 Tons—$2 Price Advance Announced

STRUCTURAL SHAPE PRICES, PAGE 253

Washington, Jan. 20.—Structural steel bookings in 1924 totaled 2,048,200 tons, as reported by 192 companies, with allowance for a few missing reports in December, according to returns to the department of commerce. December structural bookings totaled 195,887 tons, or 80 per cent of capacity. Bookings in 1924 showed a substantial increase over 1923, which totaled 1,912,935 tons, or 65 per cent of capacity for that year. The capacity of fabricators in 1924 was estimated at 290,000 tons monthly, as compared with 285,000 tons in 1923. Reports were made in 1924 by 218 companies with a capacity of 261,690 tons monthly, and capacities were estimated for the others.

The following table lists statistics reported by 189 identical companies, including data in earlier months for nine now out of business. For comparative purposes the percentage figures are prorated to obtain an estimated total for the United States based on a capacity of 250,000 tons per month for 1922 and 260,000 tons per month in 1923 and 1924.

1923	Actual bookings tons	Per cent of capacity	Estimated total bookings	Computed shipments tons
Oct.	122,153	49	127,400	205,400
Nov.	132,772	54	140,400	184,600
Dec.	195,721	79	205,400	171,600
Total	1,912,935	65	.....	.....
1924				
Jan.	176,058	72	187,200	163,800
Feb.	179,956	73	189,800	156,000
Mar.	174,663	71	184,600	169,000
Apr.	160,267	65	169,000	184,600
May	145,820	59	153,400	184,600
June	161,763	66	171,600	200,200
July	170,884	70	182,000	210,600
Aug.	146,875	60	156,000	187,200
Sept.	165,343	68	176,800	192,400
Oct.	161,011	66	171,600	202,800
Nov.	204,741*	83	221,000	166,400
Dec.	195,887	80	.....	.....
Total 1924	2,048,200	68	.....	.....

*Reported by 166 companies with a capacity of 239,880 tons.

Much Work Ahead

Boston, Jan. 20.—Preparations for an unusually active spring building program are underway. Many new projects at Boston and other New England cities will soon be ready for bids. Several projects of more than 1000 tons each are on architects' tables. Prices are unchanged. Most mills are quoting 2.465c corresponding to 2.10c Pittsburgh. Round tonnages are being placed at 2.05c Pittsburgh.

26,000-ton Award Features Market

New York, Jan. 20.—Award of 26,000 tons for the proposed New York Life Insurance building overshadows all other transactions in the local structural market during the past week. Some sizable tonnages are pending. Structural shops are in a good position, and as a result are using discrimination in considering the various projects that continue to come before them. Shapes are tending upward, with the generally accepted market now about equivalent to 2.10c, Pittsburgh. The 2.00c figure now seems to have disappeared entirely.

Specifications Are Good

Philadelphia, Jan. 20.—Structural shape specifications are good so that while new orders are small, eastern mills are operating on full schedules. Prices range from 2.00c to 2.10c, base Pittsburgh, although in some instances lower prices are being done. Protections still are outstanding on a number of structural projects expected to be placed soon.

Not Many Awards Made

Pittsburgh, Jan. 20.—From the standpoint of awards, the week has been an exceedingly quiet one in structural shapes. A number of projects are pending here. Some are considered important from the fact that they are for industrial purposes and steel will continue to be consumed in manufacturing after the buildings are up. Structural shapes are quoted at 2.10c with the tendency upward. Still higher levels, 2.20c and 2.25c are being talked about for the second quarter.

Awards Unusually Light

Cleveland, Jan. 20.—Shape activity in this district does not exist, according to some fabricators, one of the largest independents having bookings of under 50 tons for the past week. Large projects are pending and heavy spring lettings are expected. Plain material prices are firm at 2.29c, Cleveland or 2.10c Pittsburgh. Fabricated prices have stiffened slightly and quotations under $100 a ton, fabricated and erected, for regular beam and column work, have disappeared, $110 now being common.

$2 Price Advance Announecd

Chicago, Jan. 20.—The 16-story addition to the Furniture Mart, Chicago, has been redesigned for structural steel and the Wells Bros. Construction Co., 53 West Jackson boulevard, is about to place the required 6000 tons. A hotel project at Chicago, calling for 3000 tons, has just developed. The 2000 tons in the Illinois Women's Athletic Club has been tentatively placed but awaits completion of financing. Considerable work has been developing in Los Angles, including a 1500-ton baseball grandstand and a 1000-ton office building.

The Inland Steel Co., today announced an advance of $2 per ton on plain material to 2.30c Chicago, for second quarter delivery.

Larger Awards Aid Market

Cincinnati, Jan. 20.—While buying of structural shapes in this district is confined to limited tonnages the tone of the market has grown stronger since Jan. 1. Awards the past week involved small tonnages, with one or two exceptions. While 2.10c, base Pittsburgh, appears to be the prevailing market quotation on plain material, in some quarters, it was stated, that 2.00c could be done for prompt shipment.

STRUCTURAL CONTRACTS PLACED

Building awards this week.....42,636 tons
Building awards last week .....50,313 tons
Building awards two weeks ago ....57,183 tons

26,000 tons, New York Life Insurance building, New York, to the American Bridge Co.

2600 tons, Keeler hotel, Albany, N. Y., reported awarded Hinkle Iron Co.

2500 tons, Jackson Shore apartment, Chicago, to American Bridge Co.

2200 tons, apartment at Mason and California streets, San Francisco, to Dyer Bros., Golden West Iron Works.

1400 tons, addition Huntington National bank, Columbus, O., to Case Crane & Engineering Co.; Middle States Construction Co., general contractor.

1250 tons, school No. 105, Brooklyn, N. Y., to the Hedden Iron Construction Co.; T. A. Clarke Co., Boynton avenue and 173rd street, general contractor.

1000 tons, power house at Shreveport, La., to the Worden-Allen Co.

900 tons, Capitol building, Columbia, S. C., through Geo. A. Fuller Co., New York, to Carolina Steel & Iron Co.

800 tons, power plant addition for the Toledo Edison Co., Toledo, O., to the American Bridge Co.

700 tons, beet sugar plant, Sidney, Mont., to the Minneapolis Steel & Machinery Co.

550 tons, Knights of Columbus building, Columbus, O., to Case Crane & Engineering Co.; Middle States Construction Co., general contractor.

520 tons, school No. 116, New York, to Harris Structural Steel Co.

400 tons, building at Columbus, Ill., to the Mississippi Valley Structural Steel Co.

300 tons, apartment 65 Commonwealth avenue, Boston, to New England Structural Co.

206 tons, building for Corn Products Refining Co., Pekin, Ill., to the Vierling Steel Works.

200 tons, Knights of Columbus building, Canton, O., to unnamed fabricator.

150 tons, riveted truss span at River Falls, Wis., to Minneapolis Steel & Machinery Co.

140 tons, 90 tons for Gasser Bldg. Co., 106th street and Euclid avenue, Cleveland, through H. K. Ferguson Co., that city, to Pittsburgh Bridge & Iron Works, and 50 tons for American Asphalt & Paint Co., Lincoln, N. J., through the Ferguson company to Rogers Structural Steel Co.

133 tons, Hylebos bridge, Tacoma, Wash.; to Star Iron Works.

124 tons, shipping building and carpenter shop for the Bucyrus Co., South Milwaukee, Wis., to the International Structural Steel Co.

120 tons, 80 tons for Bennington Wax Paper Co., Bennington, Vt., and 40 tons for Bostwick-Goodell, Norwalk, O., through the H. K. Ferguson Co., Cleveland, builder, to the Pittsburgh Bridge & Iron Works.

120 tons, school at Norwood, Mass., to New England Structural Co. General contract to H. T. Ripley, Inc.

110 tons, plant addition for Bliss & Laughlin, Harvey, Ill., to Gage Structural Steel Co.

110 tons, shapes and 50 tons of plates for pipe saddles for California-Oregon Power Co., San Francisco, to Pacific Coast Engineering Co.

103 tons, highway bridge for River Falls, Wis., to Illinois Steel Bridge Co.

Tonnage unstated, 10-ton ore bridge for National Tube Co. at McKeesport, Pa., to Mead Morrison Mfg. Co.

STRUCTURAL CONTRACTS PENDING

7000 tons, municipal bridge, Flushing Bay, Long Island, N. Y.; Arthur McMullen Co., 50 Church street, New York, awarded general contract.

6000 tons, Furniture Mart addition, Chicago; Wells Bros. Construction Co., general contractor.

4000 tons, hotel project in Boston; pending.

3000 tons, hotel and theater at Cornell avenue and Fifty-third street, Chicago; pending.

2000 tons, building for the Pittsburgh Steel Products Co., Monessen, Pa.; bids to close Jan. 23.

2000 tons, Illinois Women's Athletic club, Chicago, to be let shortly upon completion of financing.

1500 tons, grandstand for Los Angeles baseball club; pending.

1225 tons, Sellwood bridge, Portland, Oreg.; Gelpin Construction Co. awarded general contract. Steel not yet placed.

1200 tons, Mark Twain hotel, Kansas City, Mo.; pending.

1200 tons, Miami-Biltmore hotel, Miami, Fla.; bids asked.

1100 tons, theater and office building, Miami, Fla.; pending.

1000 tons, apartment, Providence, R. I.; bids asked.
1000 tons, Citizens' Mortgage building, Los Angeles; pending.
800 tons, J. H. Taylor loft building, 236 West Twenty-sixth street, New York; pending.
600 tons, American Falls Dam, American Falls, Idaho; bids in Jan. 22.
500 tons, warehouse at Webster and 118th streets, New York; pending.
400 tons, apartment on Park avenue for Cottage Holding Co., Mt. Vernon, N. Y.; pending.
320 tons, plant for P. H. Gladfelter Co., Spring Grove, Pa.; pending.
320 tons, apartment for J. J. Harn & Co., 37 West Fifty-fifth street, New York; pending.
300 tons, telephone exchange, Astoria, L. I., N. Y.; pending.
300 tons, bridge for the Pennsylvania railroad, York, Pa.; bids asked.
260 tons, office building at Lorain, O.; Drummond-Miller Co., Cleveland, builder and general contractor.
256 tons, bridge over San Diego river at Old Town, Calif.; bids in Jan. 22.
200 tons, telephone building, Fresno, Calif; bids being received.
200 tons, plant for Steubenville Pottery Co., Steubenville. O.; H. K. Ferguson Co., Cleveland, engineer and builder.
200 tons, Marian street switch station, Public Service Corp. of New Jersey, Newark, N. J.; pending.
200 tons, addition to the Nelson house, Poughkeepsie, N. Y.; bids asked.
155 tons, Elks club, Santa Barbara, Calif.; bids in.
150 tons, Johnson building, Alliance, O.; pending.
150 tons, school building at Cooperstown, Pa.; bids close Feb. 6 by H. M. Park, R. F. D. No. 2, Valencia, Pa.
100 tons, garage, Brighton, Mass.; bids being taken.
Tonnage unstated, bascule or vertical lift bridge at Tayco street, Menasha, Wis. McMahon & Clark, engineers, at work on plans. Appropriation $150,000.
Tonnage unstated, lock for dam No. 51, Golconda, Ill.; United Gas Improvement Co., Philadelphia, low bidder at $1,295,000. Dravo Contracting Co.; bid $1,301,000.
Tonnage unstated, 10-story office and sales building for Ohio Buick Co., Euclid avenue, Cleveland; Sam W. Emerson Co., general contractor on substructure. Plans out in about eight weeks.
Tonnage unstated, Roosevelt school, Allentown, Pa.; general contract awarded Friel McLeister, Philadelphia.

Demand for Warehouse Goods Increases

WAREHOUSE PRICES, PAGE 302

New York, Jan. 20.—With the inventory season passed and the mills becoming increasingly booked ahead, local jobbers are finding the market more active. Demand for shapes and reinforcing bars are in heavy demand, building going ahead actively. Prices remain unchanged. An advance in galvanized sheets, expected to be announced last week, failed to materialize.

Demand Exceeds Expectations

Buffalo, Jan. 20.—Warehouse business is considerably in excess of expectations of Buffalo iron and steel sellers. The month, usually quiet, has developed an unusual number of orders. Size of individual orders showed a pronounced gain over the averages of the last quarter of 1924. Inquiry is general. Prices are unchanged.

January Sales Still High

Cleveland, Jan. 20.—January sales of local iron and steel warehouses continue above December, and an unusually large business is being booked by some interests. Prices continue unchanged but firm, and with mill schedules lengthening and quotations increasing, the warehouse market is steadily strengthening.

Railroads Are Quieter

New York Central Award of 1000 Features Cars—Few Rails Placed but 95,000 Tons Active in Chicago—Accessory Demand Good

RAILROAD TRACK MATERIAL PRICES, PAGE 253

New York, Jan. 20.—Car business in this district is featured by the placing of 1000 gondolas by the New York Central, which contemplates purchase of several thousand cars. Inquiry is slack.

Locomotive builders are in receipt of an inquiry for 30 electric locomotives for the Spanish Northern railroad. Other foreign developments are an order for six locomotives from the Cuban railroad, the business going to the American Locomotive Co., and an inquiry from W. R. Grace & Co., for one locomotive for shipment abroad. The Oahu Railway & Land Co., Hawaii, has ordered two engines from the American Locomotive Co.

Domestic business involves two locomotives for the Atlanta & West Point, going to the Lima Locomotive Works, Inc., one locomotive for the Anderson Middleton Lumber Co. and one switch engine for the Texas City Terminal, to the Baldwin Locomotive Works. The Cornwall railroad is inquiring for one locomotive.

Interborough Rapid Transit Co. is inquiring for 6000 tons of standard rails. It is understood that this road probably may purchase its tonnage abroad as following precedence of Henry Ford's Detroit, Toledo & Ironton. It is believed here that foreign rails can be purchased around $35 c.i.f., tidewater.

While 2.90c, base Pittsburgh, is the usual price on standard track spikes, this figure has been shaded somewhat on attractive business lately.

Small Orders Still Rule

Pittsburgh, Jan. 20.—Inability of the coal mining industry to right itself is keeping activity in light rail purchases at a low ebb. Orders are scarce and those that are placed are for small tonnages. Competitive prices still rule on the rail-steel product to the detriment of the billet-rolled rail business, for while the price on the latter is 1.80c, lower figures of $3 or $4 per ton prevail on the rail steel rails.

While new business in track accessories is slow and large inquiries are rare, specifications against backlogs of business are good. Operations among the spike and tie plate makers continue around 80 per cent of capacity. Prices are unchanged.

The Pittsburgh Railways Co., following the granting of approval by the traction conference board, will expend $1,500,000 on 100 new cars, 80 for city routes and 20 of the interurban type.

Roads Slow in Placing Rails

Chicago, Jan. 20.—Those carriers not yet protected on their 1925 rails and track fastenings are slow in coming forward. One maker now is shipping less than its capacity for rails; if general demand for steel continues heavy this mill may have a problem in the second quarter, in meeting rail specifications. Another maker's total of rail bookings is equivalent to a run of six months. The most active rail inquiries are those of Rock Island, Burlington and Cotton Belt, a total of about 95,000 tons. One maker of rails last week booked 12,000 tons in miscellaneous lots, with fastenings in proportion.

The steel required for the rebuilding of 1500 open-top cars for the Missouri Pacific will be equivalent to that for new cars. The leading interest last week booked 16,000 tons of finished material for cars placed the week previous. The Rock Island is inquiring for 1200 box and 400 general service cars.

Pennsylvania Decides on Tonnage

Philadelphia, Jan. 20.—The Pennsylvania railroad has decided on its 1925 rail program. It will buy 100,000 tons and orders are expected to be placed on this tonnage during the present week.

Nickel Plate Buys Rails

Cleveland, Jan. 20.—The Nickel Plate railroad, it is understood, has closed for the 22,000 tons of rails recently authorized by the directors for the Nickel Plate proper, the Clover Leaf and the Lake Erie & Western railroads. Distribution of this tonnage among different mills has not yet been announced. The Rock Island is figuring on 10 locomotives.

CAR ORDERS PLACED

Morrell Refrigerator Line, 100 refrigerator cars, to the American Car & Foundry Co.
New York Central, 1029 cars, 500 gondolas each to the American Car & Foundry Co. and the Pullman Car & Mfg. Co., and 29 suburban motor cars to the Standard Steel Car Co.

CAR ORDERS PENDING

Carnegie Steel Co., 12 gondolas, to Standard Steel Car Co.
Charleston & Western Carolina, 100 box cars; bids asked.
Ford interests, 40 cabooses, to Standard Steel Car Co.
Gulf & Ship Island, 6 combination and 2 passenger-baggage cars; pending.
Missouri Pacific, rebuilding of 1500 open-top cars; pending.
Rock Island, 1200 box and 400 general service cars; pending.
Union railroad, 20 cabooses and 12 steel gondolas; pending.

Ore Price Indefinite

ORE PRICES, PAGE 308

Cleveland, Jan. 20.—Prices of Lake Superior iron ore have not been established for 1925, but more talk is heard in the market, and early action is anticipated. Meetings with associated interests are in progress, with a view to determining requirements. Ore producers here deny the truth of a published report from Duluth intimating that there may be a reduction of 25 cents in the price. It is indicated that there may be an advance at least from 35 to 50 cents a ton. Some dealers pointing to the present level of pig iron prices are inclined to act promptly, while others believe there will be better chances of coming on a stronger market a little later. No inquiries are pressing for quotations.

Reliable Railway Equipment Co., Chicago, has increased its capitalization from $1000 to $150,000.

Distillate Sales

In Larger Volume—Prices Steady—Sulphate Demand Light

New York, Jan. 20.—Manufacturers of lacquer continue to place substantial orders for toluol and solvent naphtha. Spot supplies are becoming scarcer. Some sellers are unable to make shipments for at least a month. Benzol is in fairly good supply. Production is steadily increasing, and demand is fair.

Substantial buying of toluol and solvent naphtha by paint and varnish manufacturers is attributed chiefly to their growing interest in pyroxylin. The automobile and radio industries, it is said, present particularly good opportunities for the application of such a product.

Distillate quotations continue unchanged at 25 cents, works, in tanks and 30 cents in drums for pure benzol; 23 cents, works, in tanks and 28 cents in drums for 90 per cent benzol; 26 cents in tanks and 31 cents in drums for toluol; and 25 cents in tanks and 30 cents in drums for solvent naphtha. Steadiness also characterizes the market on commercial xylol, which is quoted at 26 cents in tanks and 31 cents in drums.

Trading in sulphate of ammonia remains light. Export selling is virtually at a standstill. Prices remain at $2.65 to $2.70 works, for material for domestic account. For foreign account, the market is nominally $2.90 to $3, seaboard, for material in double bags.

Demand for naphthalene is somewhat slower. Prices remain at 5½ cents, works, for flakes and 6½ cents for balls in carload lots. Phenol may be quoted at 27 cents local warehouse for spot shipment and 25 cents for futures.

Coke Oven By-Products

Spot*	
Per Gallon at Producers' Plants in Tank Lots	
Pure benzol	$0.25
Toluol	0.26
Solvent naphtha	0.25
Commercial xylol	0.26
Per Pound at Producers' Plants	
Phenol	0.27
Naphthalene flakes	0.05½
Naphthalene balls	0.06½
Per 100 Pounds at Producers' Plants	
Sulphate of ammonia	$2.65 to 2.70
Contract	
Pure benzol	Nominal
Toluol	Nominal
Solvent naphtha	Nominal
Commercial xylol	Nominal
Per Pound at Producers' Plants	
Phenol	$0.25
Naphthalene flakes	0.05½
Naphthalene balls	0.06½

*Spot distillates are subject to shading.

Some Reaction in Scrap

(*Concluded from Page 254*)

no longer are imposed, the melt generally being heavy. Prices, while unchanged from last week's level, lack strength.

Market Is Less Keen

St. Louis, Jan. 19.—The keen edge is off of the market for iron and steel scrap and considerable uncertainty has developed. The tone is perceptibly easier. Weakness at other points was an influencing factor. Melters have generally decided that a continuance of the present activity in the steel and iron industry is directly dependent upon holding down prices of their products. Any advance, they estimate, would be immediately reflected in curtailed buying, so marked is the disposition to economy and conservatism.

Despite these conditions railroad lists brought high prices, and were readily absorbed. Dealers were chief buyers, but some fair tonnages were bought direct by consumers. There is less urgency in demand for blast furnace stock, with some reductions in price. Generally the melt is holding up well, and with a continuance of present activities, the present lull cannot be of long duration. Railroad lists include 2500 tons by the Burlington and 4010 tons by the Wabash.

Sharp Drop After Sales

Philadelphia, Jan. 20.—Prices of iron and steel scrap were jolted sharply downward in the past week. Consumers bought large tonnages in the aggregate at material concessions and now appear satisfied and apparently not interested in scrap at any price. For most grades there is now no market. Sales of melting steel aggregated above 25,000 tons at $19 to $19.50 delivered. Since then consumers taking the usual freight rate have refused offers at $19 delivered. Grate bar demand has eased and now it is difficult to sell this grade at $17 delivered. Considerable forge scrap has been sold at $17.50 but there is no market for this grade now.

Softer at Cincinnati

Cincinnati, Jan. 20.—Iron and steel scrap is softer as consumers are holding off for lower prices. Melters are rejecting cars in some instances, although this practice is not as pronounced here as in several other districts. Quotations show little change. Turnings and borings are most active although sales in most instances involved small tonnages which is the character of present buying. Mills in the Ashland, Portsmouth and Middletown districts have sufficient scrap to meet requirements for 30 days.

Much Scrap Moving

Birmingham, Ala., Jan. 19.—Iron and steel scrap is still active in the South. While no change is noted in quotations, an advance is imminent and by the middle of next month it is believed the market will be $1 per ton higher. Heavy melting steel is being used more freely. Delivery on contracts will continue several weeks.

Sheet Steel Executives Will Meet

Arrangements have been made for the third annual meeting of Sheet Steel Executives to be held May 5 to 7 at Hotel Greenbrier, White Sulphur Springs, W. Va. The program, which is being arranged by the National Association of Sheet and Tin Plate Manufacturers will include for discussion problems of administration, production and distribution and will be announced later.

Sheet Output Increase in December

Pittsburgh, Jan. 20.—Despite a record-breaking selling month for the sheet manufacturers in November when 462,709 tons were written on the books of those reporting to the National Association of Sheet and Tin Plate Manufacturers, December did not fall far behind. In that month according to data just submitted by the association, sales totaled 350,868 tons, representing 111.6 per cent of the capacity reporting, a falling off of 52.4 per cent. Production increased 2.9 per cent to 259,794 tons, but shipments declined 4.3 per cent to 229,573 tons. A full comparative table for the two months follows:

	Net tons Dec., 1924	Per cent of capacity	Net tons Nov., 1924	Per cent of capacity
Total sales for month	350,868	111.6	462,709	164.0
Total production	259,794	82.6	224,931	79.7
Total shipments	229,573	73.0	219,228	77.7
Unfilled tonnage as at Jan. 1 and Dec. 1	663,460	211.0	531,845	188.5
Finished stock on hand awaiting shipment as at Jan. 1 and Dec. 1	85,856	27.3	76,811	27.2
In stock, unsold	45,743	14.5	41,573	14.7

The total number of hot mills in the United States is 701, as compared with 686 for November. The 701 hot mills had a capacity for December of 422,600 net tons, and the percentage of the capacity to which the figures shown above are related is 74.4 per cent. Following are comparative figures relating to sales, production and shipments:

	Sales	Production	Shipments
December	350,868	259,794	229,573
November	462,709	224,931	219,228
October	221,773	247,222	229,771
September	227,520	217,981	190,210
August	207,986	190,436	177,498
July	135,998	144,291	151,255
June	108,693	114,807	141,176
May	126,487	176,582	196,254
April	182,903	234,000	235,967
March	251,411	278,767	262,497
February	189,081	275,118	249,859
January, 1924	234,858	274,097	228,660
December	349,446	155,229	188,600
November	165,491	188,144	199,836
October	185,110	225,714	230,820
September	223,556	185,577	205,772
August	116,659	234,112	234,486
July	92,358	174,910	192,261
June	172,637	218,432	233,128
May, 1923	242,624	261,000	278,959

Record Is Surpassed

Pittsburgh, Jan. 20.—A world record for production from stationary open-hearth furnaces for a 24-hour run was established recently at the Edgar Thomson works of the Carnegie Steel Co., North Braddock, Pa. The record surpasses the best previous output by 694 tons. The feat, according to O. H. Hartsuff, general superintendent, was made possible only through the co-operation extended J. W. Kagarise, open-hearth superintendent and his assistant, J. R. Evans, by the employes. The material produced was of the highest quality and was made without accident or injury to any workman.

Progress Machine Works, Chicago, has decreased its capital stock from $15,000 to $1000.

Nonferrous Metal Markets

Prices of the Week

	Copper			Spot		Lead					
	Electro delivered	Lake delivered	Casting refinery	Tin, N. Y. Straits	New York Lead	St. Louis East	St. Louis Zinc	Aluminum 98-99%	Antimony Spot	Nickel Ingot
Jan. 14	15.12½	15.25	14.50	58.50	10.87½	10.62½	7.90	27.00	17.50	31.00
Jan. 15	15.12½	15.25	14.50	58.50	10.87½	10.60	7.90	27.00	17.50	31.00
Jan. 16	15.00	15.12½	14.37½	57.00	10.75	10.50	7.80	27.00	17.37½	31.00
Jan. 19	15.00	15.12½	14.37½	57.00	10.75	10.50	7.82½	27.00	17.37½	31.00
Jan. 20	15.00	15.12½	14.37½	56.62½	10.75	10.50	7.80	27.00	17.37½	31.00

NEW YORK, Jan. 20.—A slight reaction has taken place in the metal markets in the past week, due primarily to speculative selling in London. A severe break in rubber prices forced some London speculators to realize cash from metal holdings and this started the ball rolling.

The long continued rise in prices had made the market technically prepared for a reaction, so that there has been liquidation of speculative holdings on both sides of the water. No important news of economic significance has appeared in recent weeks. Fundamentals of the markets are as strong as ever. Producers and manufacturing consumers are well booked for two to four months ahead and confidence continues manifest in the outlook. Tin has been the heaviest loser, dropping £20 from the high of two weeks ago. Zinc, lead and copper have dropped only fractionally. Antimony and aluminum have remained strong.

Copper—Electrolytic copper has been obtainable from first hand sellers the past few days at 15.00c, Connecticut, whereas a week ago the market all but reached 15.25c, just prior to the break in London. Subsequently, light demand caused some sellers to grant the ¼ cent concession and enough copper has been obtainable to satisfy the light going demand at the 15.00c level. Lake copper has been quoted 15.12½c. The feature of the market has been the influence of resale lots in London, which have been offering at 15.00c and which have been a brake on the entire world market.

Copper wire—The 4,000,000 pound inquiry of the Alabama Power Co. previously reported was divided between aluminum and copper, the copper being one-half strand and one-half solid wire. Public utility companies have been far the best buyers of wire. Demand for automotive account continues to lag. Price of bare wire is advanced ⅛ cent from a week ago, to 16.87½c to 17.12½c, base, mill; weatherproof and magnet wire, 18.87½c to 19.12½c.

Rolled products—The American Brass Co. advanced the base prices of rolled products Jan. 13 by ¼ cent, which advance has been adopted by independent mills. The rise reflects the excellent bookings of the mills.

Zinc—Prime western zinc prices have reacted in the week, in sympathy with a decline in London. There has been no marked pressure to sell, as producers are heavily booked, but there has been absence, both of foreign and domestic demand, so the market has been marking time. Ore prices reacted at Joplin to $55 a ton for blende.

Lead—The American Smelting & Refining Co. has maintained its contract price at 10.50c, New York, while the St. Joseph Lead Co. has continued to allot tonnage daily at 10.25c, East St. Louis. Some open market sales were made a week ago at 11c, New York, and at 10.62½c, East St. Louis, but subsequently the premium contracted with sales at 10.50c, East St. Louis, and 10.75c, New York. Demand has fallen low.

Tin—Tin has dropped 3½ cents a pound from the recent high, which was the high for the past four years. The decline is in line with lower London prices, caused by speculative selling. The tin trade generally remains bullish, especially as American consumers have been substantial buyers on the recent reaction.

Aluminum—The domestic aluminum situation is unchanged. Prices are strong at 27c for 98 to 99 per cent virgin ingot and 28c for 99 per cent.

Metals React a Little When London Speculators Have Troubles

Mill Products

Base prices cents per pound, f.o.b. mill

SHEETS	
High brass	19.62½
Copper, hot rolled	23.00
Zinc, ga. 9 to 18 (plates ½c less)	11.00
Lead, full sheets (cut ¼c more)	14.00
Aluminum, bright, 0 to 35 gage	37.50 to 92.00
SEAMLESS TUBES	
High brass	24.25
Copper	25.25
RODS	
High brass, round, ⅝ to 2½-inch	17.62½
Naval brass	20.12½
WIRE	
Copper	16.87½ to 17.12½
High brass	20.12½

Old Metals

Dealers' buying prices cents per pound

HEAVY RED BRASS	
New York	9.50
Chicago	10.00 to 10.50
Cleveland	10.25
HEAVY YELLOW BRASS	
New York	7.50
Chicago	8.50 to 8.75
Cleveland	8.50
ZINC	
New York	4.50 to 5.00
Chicago, dross	5.00
Cleveland	4.25
HEAVY COPPER AND WIRE	
New York	12.25
Chicago	12.50
Cleveland	13.00
RED BRASS TURNINGS	
New York	8.50
Chicago	9.50 to 9.75
Cleveland	9.75
YELLOW BRASS TUBING	
Cleveland	8.75
NO. 1 BRASS ROD TURNINGS	
New York	8.25
Chicago	8.50
Cleveland	9.25
LIGHT COPPER	
New York	10.25
Chicago	11.50
Cleveland	11.25
LIGHT BRASS	
Chicago	7.50
Clippings, Chicago	10.00 to 10.50
ALUMINUM	
Borings, Cleveland	12.50
Old sheet, Cleveland	18.25
Clippings, Cleveland	22.00

Secondary Metals

Remelt aluminum No. 12	22.50 to 23.50
Brass ingot 85-5-5-5	13.00 to 13.25

Building More By-Product Ovens in Alabama

Birmingham, Ala., Jan. 19.—Alabama is manufacturing a larger quantity of by-product coke, beehive ovens losing out steadily. Only two companies now are operating beehive ovens, the Yolande Coal & Coke Co., and the Black Creek Coal & Coke Co. The Woodward Iron Co. has just let a contract to the Koppers Co. for the rebuilding of 40 of its by-product ovens at Woodward. This company has 230 ovens. The Koppers Co. is building 57 ovens for the Republic Iron & Steel Co. here, and within the next 60 days will complete an additional 25 for the Alabama By-Products Corp. The latter company's Tarrant City plant will then have 100 ovens.

The Alabama coke market is gaining strength, demand being good.

Cancels New Iron Rates

Washington, Jan. 20.—Freight rate schedules filed to have become effective Nov. 1, consisting of increases and reductions in the rates on pig iron in carloads from Chicago and St. Louis group points to several points in Iowa have been found not justified, except in some instances, by the interstate commerce commission. The commission has ordered that the rates, which had been under suspension until March 1, be canceled without prejudice to the filing of new rates to these points.

Iron Ore Imports Mount

Philadelphia, Jan. 20.—Imports at this port during the week ending Jan. 17, included 7100 tons of iron ore from French Africa and 6000 tons from Spain, 4911 tons of pig iron from France, 1782 tons from British India and 1550 tons from England; 112 tons of steel angles from Belgium; 51 tons of iron blooms from Sweden and 12 tons of steel ingots from Sweden.

Fritz Medal

Is Awarded John F. Stevens, Well Known Civil Engineer

Award of the John Fritz gold medal to John F. Stevens, New York, "for great achievements as a civil engineer, particularly in planning and organizing for the construction of the Panama Canal; as a builder of railroads and as administrator of the Chinese Eastern railway" has just been announced by the Engineering Foundation. This medal was established in 1902 in honor of John Fritz, pioneer in the American iron and steel industry. It is awarded annually for notable scientific or industrial achievement and is the highest honor bestowed by the engineering profession of this country. The award was made by a board of 16 representatives of the American societies of civil, mining and metallurgical, mechanical and electrical engineers.

John F. Stevens was born at West Gardiner, Me., April 25, 1853 and while still a young man went to the Middle West, where he was active in railroad engineering for many years. He is one of the most widely known of American civil engineers, his name being associated especially with the Panama Canal, the American Railway mission to Russia, and construction and operation of important railway systems in the United States. He is an honorary member of the American Society of Civil Engineers and the Association of Chinese and American Engineers, Pekin, and holds membership in many other American and foreign engineering societies.

As head of the American Railway mission to Russia in 1917-18, Mr. Stevens contributed to the success of the allied nations in the war. He also was director of a corps of railway experts in Manchuria. From 1919 to 1923 he was president of the Interallied Technical board supervising the Siberian railways, bringing a notable measure of order into chaos. While holding this office, with headquarters at Harbin, Manchuria, he supervised the technical operation of the Siberian and Chinese Eastern railway.

From 1905 to 1907 he was chief engineers of the Panama Canal and in 1907 acted as director of the Isthmian Canal commission. His organization of personnel of the canal forces and especially of the transportation system contributed largely to the effective construction work on the canal under his successor, General Goethals. At various times in earlier periods of his life, Mr. Stevens was chief engineer, vice president or manager of the Great Northern railway; Chicago, Rock Island & Pacific railway; New York, New Haven & Hartford railway; and president successively of the Spokane, Portland & Seattle railway and the Oregon Electric railway and other western railroads.

Other recent recipients of this medal have been Sir Robert A. Hadfield, Charles Prosper, Eugene Schneider, Senator Guglielmo Marconi and Ambrose Swasey.

New Company To Complete Cleveland Tube Works

Plans are being made by the Union Tube Co. of Cleveland, recently incorporated in Ohio, with a capitalization of $400,000 to complete without delay, the partially finished plant of the Cleveland Steel Tube Co., Cleveland which has been taken over by the new corporation. Construction of the present plant was originally started several years ago but financial troubles developing, the work was interrupted after it had made considerable progress. Subsequently, the name of the comany was changed to the Cleveland Steel Tube Co.

The plant which occupies a site of 20½ acres along the Erie railroad at present is probably 75 per cent completed. As originally planned, it was to embrace two furnaces capable of producing annually about 60,000 tons of butt-weld merchant pipe in ½ to 3-inch sizes. The new owners will bend their efforts toward completing the installation of one mill at once and later hope to carry out the original plans fully. M. A. Songer, formerly of the Foster-Songer Co., Pittsburgh, is vice president of the Union Tube Co. Louis Dulien of Seattle, an iron and steel distributor of the Pacific Coast operating under that name, is secretary. A president is to be elected shortly. H. E. Smythe, president of the S. R. Smythe Co., Inc., Pittsburgh, who died Jan. 9, was treasurer of the new company. Others interested are H. D. Marble of the Hudson Coal Co. and the Jacob Kahler, both of Cleveland.

Associations Confused

It erroneously was stated in a recent issue of IRON TRADE REVIEW that O. C. Roach had been elected secretary of the American Manufacturers association, 2 Rector street, New York. The fact is that Mr. Roach was elected secretary of the American Manufacturers Export association, 160 Broadway. New York. S. C. Trimble is secretary of the American Manufacturers association, 2 Rector street, New York.

The Swedish Steel Sales Co., 452 Lexington avenue, New York, just has added to its stock a new alloy, hollow drill steel, manufactured by the Fagersta Bruks, Fagersta, Sweden. This contains chrome and molybdenum.

Receiver Is Asked for Struthers Furnace

Counsel for the Guardian Saving & Trust Co., Cleveland and for the unsecured creditors and bondholders late last week urged the appointment of G. B. LeVan, formerly general manager of the LaBelle Iron Works, Steubenville, O., as receiver of the Struthers Furnace Co. Counsel for the stockholders asked that a trust company or John Rowland, Mahoning bank, Youngstown, be appointed receiver. The hearing on the petition of creditors for the appointment of a receiver was completed Jan. 15 and definite action in this direction is expected this week.

Application for receiver is a result of an action brought by the Guardian Savings & Trust Co., Cleveland, to recover $1,500,000 on bonds and interest at 8 per cent amounting to $60,000. The suit was brought to foreclose a first mortgage held by the bank and in connection with the application of Louis Baldwin, furnace superintendent, and other creditors for receivership. In addition to the first mortgage, unsecured creditors seek approximately $200,000. The total indebtedness of the Struthers Furnace Co. is estimated at $2,000,000 which includes approximately $20,000 in taxes due and payable Jan. 20. The Struthers Furnace Co. owns about 23 acres of land at Struthers, O. upon which its Anna stack is built. The furnace recently was remodeled to conform to modern lines.

Midvale Sale Denied

Philadelphia, Jan. 20.—Officials of the Midvale Co. say they have no knowledge of any negotiations which newspaper reports have stated to be under way whereby Bethlehem Steel Corp. or some other interest might acquire part of the Midvale plant at Nicetown. Newspaper reports stated that shares of Midvale Co. are being purchased in the market for shipment to the Guaranty Trust Co. of New York.

Becomes Iron Port

Inaugurating the port of Providence, R. I., as a distributing point for Norwegian and Spanish iron, a cargo of 6300 tons of pig iron was landed recently from the SAMNANGER. The iron was consigned to George J. Ore & Son, Providence, maritime agents, but will be distributed by W. T. Green representing William H. Muller & Co. of New York. Space on Providence wharf has been reserved for storage of 20,000 tons and three other ships are expected to arrive soon.

Coast Trade Gains Force

Structural Activity and Water Projects Call for Much Steel—Foreign Iron on Way but Utah Furnace Gets Most Business

Special By Air Mail

SAN FRANCISCO, Jan. 17.—Steel buying on the Pacific coast is gaining headway and projects call for some rather heavy tonnages. Less tendency to shade going prices is noted and the market as a whole is on a firm basis. Further advances in some lines have been named.

Pig Iron and Coke

Dealers in pig iron and coke report a better volume of inquiries this week but sales were confined to relatively unimportant lots. One interest reports orders received from foundries in the Los Angeles district totaled over 1000 tons, mostly for Utah iron. Prices are unchanged. Several importers of foreign iron and coke report tonnages enroute. English ferromanganese, 80 per cent has advanced $5 and is now being quoted at $117 a ton. The Southern Pacific railroad has placed 50 tons at the old price.

Bars, Plates and Shapes

Local bar mill operators report little improvement in demand for merchant bar material, orders involving small lots. Prices are firm at 2.55c to 2.60c f.o.b. San Francisco. One importing house is offering foreign material at under 2.00c, c.i.f. duty paid coast ports. Demand for concrete bars is becoming heavier each week and prices are firm at 3.25c in lots of 250 tons or more from stock. Awards this week totaled over 4000 tons while pending business is in excess 5000 tons.

Only two awards for plate tonnages in excess of 100 tons were reported this week. The Hamler Boiler & Tank Co. was awarded the 66-inch penstock for the Lingle Power plant, North Platt Project for the bureau of reclamation at Denver, involving 110 tons and the Hanlon Drydock & Shipbuilding Co. took a 2500-ton self-propelled barge for the Associated Oil Co. at San Francisco, involving 162 tons. Inquiries include 6000 tons for the estuary tube, Oakland, Calif., 480 tons for three generators for the Pacific Gas & Electric Co., San Francisco, 125 tons for a 37,000-barrel tank for the Associated Oil at Monterey, Calif., 400 tons for small tank for the Pan American Petroleum Corp. in Los Angeles and 850 tons for the Port Angeles, Wash., pipe line, bids on which will be opened Jan. 28. Prices now range from 2.50c to 2.56c c.i.f. coast ports, the former applying only on large desirable lots. Several independents are quoting 2.60c but this price is merely nominal.

Plain structural material is firm at 2.50c as a minimum while 2.56c c.i.f. is being obtained by several interests. Contracts placed this week totaled over 2500 tons, an apartment house in San Francisco taking 2200 tons. This was awarded to Dyer Bros., Golden West Iron Works. Over 13,000 tons are now being figured while over 20,000 tons more is expected to come out for figures before the end of the month.

Other Finished Material

Better demand for cast iron pipe tonnages by private and municipal buyers is noted and prices have strengthened. On base sizes $53 to $54 a ton delivered is being named. No large awards were reported this week but over 7500 tons are pending, most of which it is expected will be closed during this week. Pipe mill representatives report an increase in inquiries. Demand for standard merchant pipe is more pronounced than in the case of oil country goods. Oil production in California during 1924 was 230,045,000 barrels. This is 33,683,895 barrels less than was produced in 1923.

Distributors of steel from stock report movement increasing with practically all lines active. Indications already point to a greater total for January than for the same period in 1924. Prices in the San Francisco district remain unchanged, but the following changes have been put into effect in Los Angeles: Bars from 3.00c to 3.20c, shapes from 3.00c to 3.25c, plates from 3.00c to 3.25c, blue annealed from 4.05c to 4.20c, black sheets No. 28 gage from 5.15c to 5.25c, galvanized No. 28 gage from 6.15c to 6.25c and bands from 4.00c to 4.20c.

Northwest Builds Much

SEATTLE, Jan. 16.—Anticipated buying has not yet started briskly but the outlook is encouraging. Prices are firm and many projects are to come up for figures soon.

Several large building projects are proposed for Seattle. The city has had plans drawn for a $1,500,000 combined city and county hospital. Two apartments, each to cost $350,000, were announced during the week. The school board is to ask a bond issue for $2,250,000 to provide eight additional buildings.

Puget Sound Power & Light Co. has obtained a permit to construct a reservior in Skagit county, to cost $1,500,000. This is to be a unit of the company's Baker river hydroelectric project to develop 6500 horsepower.

Numerous water improvement projects are being planned by cities in Washington and Oregon. Tacoma's program is for an expenditure of $300,000 this year including replacement of wooden pipe by a 60-inch steel main.

Pig Iron and Coke

While some shipments of continental Scotch hematite and Swedish charcoal pig iron are to arrive shortly, buying is restricted as the foundries are well stocked. Utah iron ordered some time ago is arriving. Foundrymen are interested in offers of English coke which analyzes favorably. Its price is $15, f.o.b. yard Seattle or Tacoma.

Bars, Plates and Shapes

The local mill is still quoting 2.50c for bars but it is understood a conference is to be held in the next few days to place this market and San Francisco on a parity. In California the price has been 2.60c for several weeks. Bars are moving in fair volume although small tonnages are the rule.

Plates are firm at 2.50c the same as last week. While no large tonnages are pending the outlook is promising as several fair sized projects are expected to be up shortly.

Shapes have advanced from 2.45c to 2.50c during the week and are firm at the latter figure. Bids have been opened at Portland for the Sellwood bridge. Gilpin Construction Co., of that city was low bidder and was awarded the contract at $442,500, the engineers' estimates having been $438,000. The steel involved is understood to be 450 tons. County commissioners at Portland have decided to build a steel instead of a concrete bridge at Ross Island and new plans will be drawn. Under the specifications for a concrete bridge 2384 tons of material were involved. At Seattle King county commissioners have decided to release J. B. Wood, contractor, from his contract for the Whitney bridge involving 55 tons, the steel for which was awarded Wallace Equipment Co. New bids will be received Feb. 2. Seattle Boiler Works has been awarded the contract at $18,022 for constructing a steel standpipe in Woodland park Seattle. The steel for the Hylebos bridge Tacoma 133 tons, is reported to have been awarded to the Star Iron Works, Tacoma.

Finished Materials

Wholesale jobbers report find more business than in December. The feature of the week was the decision of Portland dealers to raise prices to the Seattle level, effective Jan. 12. For several months the Portland market has been disturbed by price cutting, bars plates, hoops, bands and shapes having been 25 cents under Seattle.

The Wallace Equipment Co. has added machine shop equipment to its fabricating plant so that it can do the machine work on bridge contracts. No new equipment was purchased the necessary machinery having been taken from the surplus of the J. F. Duthie Shipbuilding Co.

City of Seattle is in the market for 16,000 pounds of high silicon transformer steel and has awarded the Pacific States Electric Co. the contract for ten miles of hard drawn copper wire for $17.55 per hundredweight.

Germans Restore 8-Hour Day

Cabinet Decides To Enforce Law at Coke Ovens and Furnaces—Metal Workers Refuse to Renew Agreements—Britain Increasing Ferromanganese Sales to United States—Ford Rail Order Placed with La Providence

Iron Trade Review Staff Cable

European Headquarters,
IRON TRADE REVIEW,
2-3 Caxton House, Westminster, S. W.1

LONDON, Jan. 20.—The German cabinet has decided on a return to the three-shift system at coke ovens and furnaces, according to reports from Berlin. While the 8-hour day has been the legal limitation, the enforcement of the law has been waived recently by tacit consent of employes, employers and public officials. Four unions of miners in the Ruhr district and Berlin metal industries refused to renew a longer working day agreement for February.

The British pig ion position is slowly improving, two more stacks preparing to resume operations. Prices in general in the British market, however, are weaker. Ferromanganese business with the United States is expanding. Continental foundry iron is competing at £3 14s 6d ($18.13) Antwerp. One of the British railroads has ordered 5100 cars. German finished engine shafts are selling at £12 15s ($62.08). Demand for tin plate and galvanized sheets is progressing.

Paris reports an advance is expected in the French pig iron market. A dispatch from Brussels states the French Nord railroad has purchased 5000 tons of rails. The order for 10,000 tons of rails for Henry Ford for the Detroit, Toledo & Ironton railroad was placed with Societe de la Providence, Charleroi, Belgium.

British iron and steel imports in December totaled 221,223 tons in December, compared with 213,000 tons in November; 276,695 in October and 207,200 tons in September. Exports amounted to 303,057 tons compared with 311,630 tons in November; 313,920 tons in October and 263,800 tons in September.

British Steel Hurt by Foreign Low Prices

European Staff Special

Office of IRON TRADE REVIEW,
Prince's Chambers, Corporation St.

BIRMINGHAM, Eng., Jan. 12.—The Birmingham quarterly meeting held last week hardly came up to expectation. All the districts except Scotland were represented, but little additional business resulted. The steelmakers were unanimous in stating that orders showed a decided increase over three months ago, but there was no inclination for forward buying. This was probably due to a general impression that prices are not likely to increase. Steel prices are slightly weaker, joists, sections, etc., being accepted at £9 ($42.93) against the recent figure of £9 5s ($44.12). One order is said to have been accepted at £8 17s 6d ($42.33) although details were not obtainable. Makers are undoubtedly prepared to make a concession for a prompt specification.

Pig iron shows a little improvement. Furnaces are being relighted. On the North East Coast, Bolckow, Vaughan & Co. has this week started another furnace on Cleveland iron, raising the number in that area to 41, including 14 producing ordinary Cleveland material, 11 hematite and 16 basic ferromanganese. In the Black Country the Earl of Dudley has lighted a furnace at Round Oak to make basic pig iron chiefly for his own works. Export business is slowly expanding though December was on the whole a disappointing month. More pig iron is being ordered by America. Coke is uncertain but ample stocks are available and the basis continues at 16s 9d ($4.04). But blast furnacemen believe they can buy at a lower price and if this should ensue some cheapening of pig iron may follow. The conditions both as to finished and unfinished material are slightly in favor of a waiting policy. Cleveland No. 3 iron is firm at £4 1s ($19.31) and East Coast hematite is maintained at a minimum of £4 8s ($20.98). Increasing quantities of foreign ore are being taken, but here also prices are inclined to be a shade easier.

Sterling—$4.77

Selling prices of No. 3 Cleveland iron for the December quarter show an average selling price of £3 19s 11d ($19.11) against £4 3d ($19.13) for the previous quarter, involving a reduction in wages of 6½ per cent from 18¾ per cent to 12¼ per cent above the standard.

The Staffordshire iron trade has sustained another blow in the stoppage of the Mars Iron Works at Wolerhampton, owned by George Adams & Sons Ltd., which will throw idle 620 men. The directors do not care to continue the present struggle for intermittent orders which carry no profit and do not cover the necessary overhead expenses. A pessimistic view prevails about the Staffordshire trade as four works are now either demolished or in course of demolition. The selling price of £13 ($62.01) for medium bars, while it carries in many cases no profit does not appeal to users who can get steel or foreign iron at substantially lower figures. Recent orders for rolling stock has furnished some mills with three months work because certain railroads prefer Staffordshire iron for certain railroad building requirements. The demand continues good for best iron, technically known as marked bars, although these command the high price of £15 ($71.55) and the makers of this high class material seem to be assured of continuous business.

The tin plate trade shows a slight improvement, the Far East, Canada and the Continent having come forward with orders. The Dominion shipments, it is understood, are to continue over the next six months.

Railroad Order Helps Belgian Mills

European Staff Special

BRUSSELS, Jan. 12.—The Belgian iron and steel market opens the year under satisfactory conditions, new business as well as inquiries raising hopes for a more promising future than was expected at the end of 1924. The main feature of the market is the award of considerable rolling stock by the Belgian state railroad. Most Belgian firms bid for this contract in competition with numerous German companies but the larger portion of the order was divided between Belgian mills.

Iron and steel prices are generally firm and although buyers are not always will-

Current Iron and Steel Prices of Europe

Prices Converted into Dollars at Rates of Exchange, January 19

	British Gross Tons U. K. Ports		*French* Metric Tons Channel Ports		*Belgian and Luxemburg* Metric Tons Channel Ports		*German* Metric Tons Rotterdam or North Sea Port	
Export Prices f. o. b. Ship at Port of Despatch—By Cable	£ s d			Francs		Francs	£ s d	
PIG IRON								
Foundry No. 3, Silicon 2.50-3.00	$19.36	4 1 0*	$18.16	335	$18.13	360	$21.51	4 10 0
Basic	19.12	4 0 0	18.43	340	18.13	360	23.90	5 0 0
Basic-bessemer	21.51	4 10 0†	17.07	315	17.12	340	21.51	4 10 0
Hematite, Phosphorus 0.02-0.05	20.79	4 7 0	22.76	420	.....	...	27.49	5 15 0
SEMIFINISHED STEEL								
Billets	$31.07	6 10 0	$26.02	480	$25.93	515	$25.10	5 5 0
Wire rods	52.58	11 0 0	34.15	630	33.73	670	32.27	6 15 0
FINISHED STEEL								
Standard rails	$40.63	8 10 0	$27.10	500	$28.70	570	$29.88	6 5 0
Merchant bars	1.76c	8 5 0	1.32c	535	1.29c	565	1.27c	5 17 6
Structural shapes	1.71c	8 0 0	1.27c	515	1.23c	540	3.25c	5 15 0
Plates, ship, bridge and tank	1.87c	8 15 0	1.62c	660	1.53c	680	1.46c	6 15 0
Sheets, black, 24 gage	2.67c	12 10 0	3.08c	1,250	2.85c	1,250	2.98c	13 15 0
Sheets, galvanized, 24 gage, corrugated	3.68c	17 5 0	4.29c	1,745	5.19c	2,275	3.80c	17 10 0
Bands and strips	2.35c	11 0 0	1.65c	670	1.80c	790	1.84c	8 10 0
Plain wire, base	2.35c	11 0 0	2.39c	970	2.05c	900	1.84c	8 10 0
Galvanized wire, base	2.99c	14 0 0	3.10c	1,260	2.62c	1,150	2.22c	10 5 0
Wire nails, base	3.09c	14 10 0	2.58c	1,050	2.05c	900	2.71c	12 10 0
Tin plate, base box 108 pounds	$ 5.62	1 3 6	.....	....	.....	...	$ 5.62	1 3 6

Domestic Prices at Works or Furnace—Last Reported							Renten Marks
Foundry No. 3 Pig Iron, Silicon 2.50—3.00	$19.36	4 1 0	$16.53	305(2)	$18.13	360	$20.24	88
Basic pig iron	19.12	4 0 0	16.80	310(1)	17.37	345	22.54	98
Furnace coke	4.00	0 16 9	7.70	142	7.55	150	5.52	24
Billets	31.07	6 10 0	24.31	430	25.68	510	27.14	118
Standard rails	1.81c	8 10 0	1.21c	490	1.39c	610	1.42c	136
Merchant bars	1.87c	8 15 0	1.25c	510	1.24c	545	1.32c	126
Shapes	1.81c	8 10 0	1.19c	485	1.20c	525	1.30c	125
Plates, ship, bridge and tank	1.97c	9 5 0	1.67c	680	1.52c	675	1.56c	150
Sheets, black, 24 gage	2.77c	13 0 0	3.08c	1,250	2.91c	1,275	2.76c	265
Sheets, galvanized 24 gage, corrugated	3.68c	17 5 0	4.29c	1,745	5.19c	2,275	5.06c	485
Plain wire	2.35c	11 0 0	2.39c	970	1.94c	850	1.77c	170
Bands and Strips	2.45c	11 10 0	1.70c	690	1.78c	780	1.67c	160

* Middlesbrough; †Scotch foundry iron; (1) Basic-bessemer; (2) Longwy. British export furnace coke £0 16s 9d ($4.00) f. o. b. Ferromanganese, £15 10s 0d ($74.09) f. o. b. The equivalent prices in American currency are in dollars per ton for pig iron, coke, semifinished steel and rails; finished steel is quoted in cents per pound and tin plate in dollars per box. British quotations are for basic open-hearth steel; French, Belgian, Luxemburg, and German are for basic-bessemer steel.

ing to close at those prices, sellers are not in the mood to make concessions since order books are generally well filled. Inquiries from foreign markets are fair and a number of orders have been obtained. Demand for raw materials is an indication that a revival can be seen in business generally in the near future. A number of pending orders must crystallize soon since deliveries are extended as far as March 15 and it is to be expected that premiums will be offered for prompt delivery.

In pig iron prices have not shown much variation but quotations generally are firm with slightly easier tendency for foundry pig iron. No. 3 foundry pig iron, 2.3 to 5 per cent silicon, is quoted at 360 to 365 Belgian francs per metric ton ($18 to $18.20 f.o.b. Antwerp, and 350 francs ($17.50) can now be readily obtained for basic bessemer pig iron. British offers for Belgian pig iron are below the Belgian quotations but by means of concessions on both sides a certain amount of business is being done. Blast furnace operators are complaining that the price of furnace coke, now fixed at 145 francs per ton ($7.25), is too high in comparison with the price of coking coal. The price of coke is now fixed by the Belgian coke syndicate.

Quotations for semifinished steel products are somewhat irregular but the market generally is firm and the demand is satisfactory. British offers for Belgian billets are no higher than £5 6s per metric ton ($25.50), whereas Belgian makers demand from 515 to 520 Belgian francs ($25.75 to $26). The price of £5 10s ($27.50) has been demanded by certain mills but at this level no business is obtainable. Lorraine and Luxemburg quotations are on the same level as the Belgian quotations. In the steel market, although buyers are trying to counteract the rising tendency of prices, business is obtained at prices which are more satisfactory from the sellers' point of view than at the end of December. Mills are well supplied with orders and the contract for railroad cars just closed by the state railroad is a good asset to most makers of shapes, since the orders have been divided between a number of firms. Merchant bars for export have reached £6 ($28) per metric ton, f.o.b. Antwerp. One mill quoted as high as £6 2s 6d ($28.60). The best price obtained for beams is £5 15s ($26.75) per metric ton. Home prices are somewhat higher, since bars are sold at about 595 Belgian francs ($29.25) and beams at 570 francs ($28.50). Luxemburg and Lorraine prices are a little higher. Basic bessemer plates have gone from £7 ($33.30) to £7 2s 6d ($34) f.o.b. Antwerp, for export. The domestic price is about 680 francs ($34). Export orders for ⅛-inch plates have been obtained at £7 12s 6d ($36.25) f.o.b. Antwerp.

In wire products a hardening of prices has taken place. Black wire is now quoted at 900 francs per ton ($45); galvanized wire at 1150 francs ($51.25); wire nails at 900 francs ($45). These prices are 50 francs per ton ($0.25) higher than at the end of 1924.

Steber Machine Co., Utica, N. Y., has decreased its capital from $60,000 to $40.000.

Luxemburg Output Lower in November

Brussels, Jan. 12.—Iron and steel production in Luxemburg in November suffered a slight set-back in comparison with October especially with regard to steel. The production of pig iron in November was 185,216 metric tons compared with 1,899,072 tons in October, the highest of the year. The November output includes 179,877 tons of basic bessemer pig iron, 5324 tons of foundry pig iron and 15 tons of various other grades. The production of steel in November was 157,798 metric tons, against 168,158 tons in October the maximum of the year. The November output includes 156,212 tons of basic bessemer steel, 1029 tons of open-hearth steel and 557 tons of electric steel. The following table shows production in metric tons month by month:

1924	Pig iron	Steel
January	162,217	146,578
February	165,313	150,952
March	186,793	156,051
April	185,623	156,868
May	184,302	151,790
June	175,039	143,573
July	180,628	157,338
August	181,367	156,284
September	177,048	158,243
October	189,072	168,158
November	185,216	157,798

Hurley Machine Co., Chicago, has decreased its capitalization from $26,000 and 200,000 shares no par value to 200 shares no par value stock.

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Steel in Delivery Stage

REVIVAL of the iron and steel industry now is in the cycle of advanced production. With plant output in many cases above 90 per cent, and in the Chicago territory at least, around 95 per cent, the utilization of capacity is approaching the workable maximum. However, taking the industry as a whole, it still has considerable slack to be taken up before it reaches the high water mark of March 1924 when the steel production attained the greatest momentum in the history of the steel industry. In December steel ingots were being made at the equivalent of 85 per cent of the March record. Some further gain has been made since.

While production has been gradually accelerated, new buying of iron and steel has fallen considerably below the volume which held sway through the greater part of November and December. This is in accordance with the normal performance of a developing steel market. Buying swells come and go during which the mills and furnaces accumulate order books. These are followed by a period of expanded shipments which necessitate rising production. Hence shipments, not sales, are the key to the basic strength of the present situation. So far they have been satisfactory. Undoubtedly depleted stocks are being restored on all sides.

Large scale operations of the works seem reasonably assured for about the next three months. Before that time, producers of necessity, will be forced to replenish their order tonnage if the present rate of output is to be maintained. Some time before April, therefore, a clearer answer to the question how far actual consumption has been increased and is being upheld, will be registered.

Conservatives or Radicals?

BY MANY the American Federation of Labor is held to be deserving of a measure of tolerance, and perhaps support on the ground it is a conservative influence. Labor must have some rallying point, and if it were eliminated a less stable and perhaps more radical successor would spring up.

The federation's espousal of the La Follette cause last fall, plus labor's refusal to be delivered en bloc, constitute a double-barreled argument to the contrary. Then there is the matter of the federation's alignment with the Foster and Fitzpatrick elements in the 1919 steel strike. But forgetting these excursions which tend to dissipate the halo of conservatism, consider the record of the federation's recent convention at El Paso, Tex.

It proclaimed the "almost complete elimination of the so-called open shop movement as an aggressive force." It declared opposition to any wage cuts "no matter what the result to industry." It denounced trade schools, compulsory arbitration, industrial unionism in the steel industry, federal courts, injunctions, the Sherman act, and state regulation of industry. It advocated a federal department of education, the child labor amendment to the constitution, entrance of the United States into the League of Nations, the La Follette restrictions upon the Supreme Court, and the Howell-Barkley railroad bill.

If this be conservatism, then Calvin Coolidge is a "red" and Senator Borah a protagonist of the League of Nations. The federation's membership decreased from 4,078,740 in 1920 to 2,865,579 in 1924. On Aug. 31 the working balance of the federation was only $36,000, exclusive of $201,000 restricted to defense purposes. It is probable a great deal of the importance of the federation is self-appraisal.

Price Movement Is Wholesome

THE movement of prices at the start of the new year is decidedly upward. Fresh evidence of this fact comes to hand with the latest index of wholesale values of the bureau of labor statistics. At the close of December this figure stood at 57 per cent above the 1913 average. It had gained 2¾ per cent in a month and 8 per cent from the bottom level of 1924. In no month since April, 1923,

have prices averaged so high as they did at the turn of the year.

The price movement has exhibited unusual vigor since last summer. It is a noteworthy and important fact, however, that the major part of the advance up until a short time ago represented the tremendous rebound for grain prices. From the bottom level in June to December the group of commodities in the bureau of labor statistics index classed as "farm products," rose 17 per cent. All the other groups, mostly industrial ones, advanced less than 3 per cent.

The increases for industrial prices, in the main, occurred in the final weeks of the year. Iron and steel prices did not reach their low point and start up until in November. December brought gains for "fuel and lighting," for "clothing" and for "building materials." These latter which were at 69 per cent above the 1913 level now stands at 75 per cent above those levels, plainly showing the trend of building costs. "Metals and products" were 41 per cent over the prewar basis in December, 1923; they were at their low point for the recent movement at 28 per cent above 1913 in October; and in December they stood at 33 per cent.

The price outlook is hopeful. Agricultural prices, long depressed, have caught up with industrial goods. That has helped to equalize the economic structure. Industrial prices are rising, but not violently. They are pointed to better levels. Better in this case means moderately firmer values but not so high as to choke off consumption. As one authority expresses it the best price is not necessarily the highest, but rather the price which gives the greatest earning power to the greatest number of industries concerned. It is the price which shows a fair profit to the producer of raw materials, continues the definition, to the manufacturer of finished goods, to the wholesaler and the retailer—and the price also which coincides with the purchasing power of the public.

Low Carbon Steel Shows Strength

AT THIS point in metallurgical research it might be supposed that work on low carbon steel has been carried out to the limit. A paper presented by R. H. Smith before the winter meeting of the American Society for Steel Treating at Cincinnati last week, however, brought out rather clearly that in at least one direction the properties of this steel had not been investigated fully. In a rather extensive series of experiments, the author has been able to obtain in low carbon steel of 0.15 per cent carbon or less tensile strengths as high as 150,000 pounds per square inch together with other desirable physical properties.

Howe and Ibid both have stated that as the rapidity of cooling increases, the tensile strength of low carbon steel increases continuously. Ibid also said that the ductility decreased, but more suddenly. With this as a starting point, Mr. Smith first devised a quenching apparatus which would give an extreme rate of quenching. The steel so quenched showed increased tensile strengths. The tests were carried out over a range from 860 to 2400 degrees Fahr. with uniform results except for the temperatures of 1300 and 1600 degrees Fahr. where tensile strengths were found to rise abruptly. Reduction in area decreased rapidly until 1310 degrees was reached when it turned upward until about 1550 degrees was reached.

The work has been done on a commercial basis in the production of bolts and rivets and the results have been satisfactory. It is possible to secure commercially tensile strengths in excess of 90,000 pounds per square inch without objectionable brittleness. Under unusually favorable conditions in production, some bolts have tested as high as 160,000 pounds per square inch. It has been found that with proper co-ordination of the heat treating and drawing that a wide choice in the relation between tensile strength and reduction of area can be obtained. This means that it is possible to manufacture rivets, for example, with high tensile strengths and still retaining excellent cold riveting qualities. In the case of rivets, this method of heat treatment is of considerable value for the rivets can be manufactured with properties of strength and ductility which give complete assurance that they will not fail in driving or in service. Mr. Smith's success in developing these previously unknown properties of low carbon steel is another example that science is not yet complete master of the commonplace.

How Consolidations Affect Ore Prices

ONE result of consolidations in the iron and steel industry in recent years is reflected in figures pertaining to Lake Superior iron mine operations. It is interesting to note that four of the leading companies in the ore business account for 73 per cent of all the material mined in the district in 1924. This, of course, includes the Steel corporation's subsidiary that shipped approximately 45 per cent of the season's total.

In 1915 the same companies shipped 64 per cent of all the ore forwarded from the district. The Steel corporation's proportion then was substantially the same as in 1924. The increase in percentage for the group, therefore, is due to the three independents producing a greater relative quantity. This has been brought about mainly through consolidations.

While it illustrates the tendency in the Lake Su-

perior ore business, the price reaction has been apposite from that which might naturally be expected under the circumstances. The principal shippers also are large consumers. Low prices charged by them against this raw material hase been applied in the open market, and thus have been of advantage to furnace interests less fortunately situated as to supplies, although a disadvantage to the smaller ore producers, who have had to meet sharp price reductions in quiet years.

The open market price of iron ore in 1924 did not fairly represent the level at which the majority of sales were made, some of the companies having found it necessary to shade the price. But taking it at its face value, the increase over 1915 was 18 per cent. The increase in basic iron at Pittsburgh, averaged over the time in which the iron ore was used, was 30 per cent. The increase in steel bars was 17 per cent.

Another comparison is afforded by the following: In 1915 the ore price was 7.69 per cent of the price of bars, and 16.89 per cent of the price of basic iron. In 1924, the ore price was 11 per cent of the price of bars, and 22 per cent of the price of basic.

Whatever might be said on the subject of proportionate prices it is evident that consolidations by which a small group control three-fourths of the output has not forced up the price of ore. In fact, the tendency has been to hold it down.

Yesterdays in Industry

Trade and Technical News from IRON TRADE REVIEW 10, 20 and 30 Years Ago

January 24, 1895

FREIGHT reductions were more in vogue 30 years ago than today. At least they seem so. By reclassifying iron and steel products from fifth to sixth class the Central Traffic association granted a reduction of about 20 per cent in rates, effective April 1.

* * *

Total production of Lake Superior ore to the end of 1894 was 87,000,000 tons, of which the Marquette range had shipped 41,000,000 tons, almost half. How times have changed! To date the Marquette range has shipped about one-eighth of the total from the Lake Superior district. In 1924 its proportion was about one-fourteenth.

* * *

Puddle slag cinder, formerly wasted, was being subjected to experiment as material for smelting in the blast furnace. It was used in the production of basic iron to furnish the phosphorus. Old dumps were being worked to reclaim the cinder.

* * *

January 26, 1905

EMPLOYES of the Carnegie Steel Co. and underlying companies were paid $241,988.32 in 1904, the third year of the Carnegie relief fund. The first year payments were $48,213.85, an increase to five times the initial outlay coming in three years.

* * *

Suing a city for overturning one of its ordinances sounds like rubbing it in. But listen—Filer & Stowell of Milwaukee presented to the Milwaukee city council a bill for $1000 for expense incurred in overthrowing the 8-hour clause of the city's ordinance on contracts. As a result of this the city was saved $15,500 on a contract for pumping engines, which would have cost that much more on the basis of an 8-hour day. The company sought only reimbursement for actual outlay.

* * *

A report in New York stated that the Midvale Steel Co. was to be absorbed by the United States Steel Corp. and Bethlehem Steel Co. The report was almost two decades early.

* * *

William Whigham, lately deceased, was appointed assistant to A. C. Dinkey, president of the Carnegie Steel Co.

* * *

Production of Lake Superior iron ore in 1904 was 21,822,839 tons.

* * *

Henry S. Manning of Manning, Maxwell & Moore, sold his interest to Charles A. Moore and retired. The business was founded by the former in 1873 and was incorporated as Manning, Maxwell & Moore in 1881.

* * *

January 28, 1915

ENGLAND required formal agreement by buyers and users of ferromanganese that no steel made from this material would be shipped from the United States to Germany, Austria, Turkey or other enemy countries, except through London. Unless this was agreed to, no ferromanganese would be shipped to the United States from British sources.

* * *

Henry Ford, in a statement to the federal commission on industrial relations outlining the profit sharing plan of his company, said the Ford Motor Co. was capitalized at $2,000,000, owned by eight people and in 1914 has done a gross business of $80,000,000 to $90,000,000 with a profit of $25,000,000.

* * *

Directors of the First National bank of Uniontown, Pa., closed the institution because of bad conditions resulting from a long period of poor business. Receivers were appointed for J. V. Thompson, its president, who was widely interested in the coal and coke industry and in finance in that section.

Some Prices from the Past

	Jan. 24, 1895	Jan. 26 1905	Jan. 28, 1915
Basic, Pittsburgh	....	16.85	13.45
Bessemer, Pittsburgh	10.65	16.95	14.70
No. 2 foundry, Pittsburgh	10.25	17.35	13.70
No. 2 foundry, Chicago	9.75	17.50	13.00
Lake Superior, Chicago	13.00	18.50	15.75
No. 2 southern, Birmingham	8.00	13.75	9.50
Bars, steel, Pittsburgh	1.25c	1.40c	1.10c
Bars, steel, Chicago	1.25c	1.565c	1.29c
Plates, Pittsburgh	1.15c	1.40c	1.10c
Shapes, Pittsburgh	1.25c	1.50c	1.10c
Heavy melting steel, Pittsburgh	....	17.00	11.50
Heavy melting steel, Chicago	6.75	15.00	9.00

Tax Refund Is $150,000,000

Many Iron and Steel and Other Industrial Companies To Share in Repayment of Sums Illegally Collected by Government—Appropriation Voted in Congress—$363,500,000 in Claims Paid in Past Eight Years

WASHINGTON, Jan. 20.—Industrial companies and a large number of individuals will share in large cash distributions from Uncle Sam's pocketbook within the next two years. In the urgent deficiency bill which has passed both houses of congress; $150,000,000 is appropriated to pay the accumulated tax refund claims on taxes erroneously and illegally collected. All the money appropriated last year was paid out, and tax refund claims on last year's taxes and taxes of previous years now must be met. Refunds will include interest from the time the taxes were paid, as well as the rebate of 25 per cent on taxes paid last year. More refunds are to be made later.

In the bearings on the urgent deficiency bill before the house appropriations subcommittee, Charles R. Nash, assistant commissioner of internal revenue, estimated that the refunds for the fiscal year 1925 will be more than $154,000,000, including the rebate of 25 per cent. Refund claims paid by the bureau in the last eight fiscal years reached $363,500,000, and this represents 1.3 per cent of the total taxes collected in those years. The figures include about $17,000,000 refunded because of the cut of 25 per cent on income taxes paid last March. Despite the large amounts which have been paid out in refunds, these represent only about 15 per cent of the total amount collected by the treasury in the last eight years, due to additional assessments and collections following office audits and field investigations which revealed how much taxpayers owed the government. In other words the treasury in the last eight years and three months has collected 85 per cent more on underpayments than it paid out to taxpayers on overpayments.

Some weeks ago the treasury furnished the house ways and means committee with the names of persons to whom amounts were due in refunds, because of illegally collected taxes. These names, 90,000 of them were in eight huge volumes, and because of the fact that names of other firms and persons which had no refund claims were included the list has been productive of information only to those who read the entire list.

Amounts Will Vary

The list of refund claims shows that the amounts to be paid to firms and individuals run from 1 cent to millions. Some large firms are to get a few cents refund. The change in the allowance of interest in the 1924 tax law means that the government is going to have to pay more interest on these refunds in 1925. It is estimated that the interest alone will amount to $50,000,000 or $60,000,000 a year. Mr. Nash estimates that about $150,000,000 in back taxes will be collected in 1925 and similar amount in 1926.

The refund claims are made on the basis of whether stock dividends declared by corporations should be classed as income to the stockholders; whether transfers in contemplation of death made prior to the passage of the revenue act of 1916 are part of the gross estate of the decedant and are subject to the estate tax imposed by that act; whether a stockholder's privilege of subscribing to new stock in a corporation results in taxable income before the stock subscribed for is sold, and many other points.

Within the last 30 days the circuit court of appeals has handed down a decision to the effect that a taxpayer is entitled to depreciation on a leasehold. The revenue bureau will carry this case to the Supreme Court, and in case the Supreme Court upholds the decision of the lower court, this would result in refunds totaling $100,000,000 because it involves taxes on leaseholds in the iron and steel industry, the oil, gas copper, silver and other industries.

The new board of tax appeals, which hears these claims, is a quasijudicial body that is outside of the treasury department. It can overrule the commissioner of internal revenue and the secretary of the treasury, but the commissioner has the right of appeal in court over any opinion which the board may hand down and which he does not accept. The taxpayer has the right of appeal in court from any decision he receives from the board of tax appeals with which he does not agree. Following are the refunds of amounts over $20,000 to be paid under the urgent deficiency act.

These Will Receive Tax Refunds

Lockwood Ash Motor Co., corner Jackson and Douglas street, Jackson, Mich	$ 22,909.79
Champion Spark Plug Co., Washington	1,068,576.59
Belevedere Screw & Machine Co., Washington	30,797.79
International Harvester Co., Chicago	813,898.76
Automatic Electric Co., Chicago	99,409.91
Bethlehem Spark Plug Co., Washington	91,410.18
Oklahoma Iron Works, Tulsa, Okla.	21,805.06
General Railways Signal Co., Rochester, N. Y.	64,418.76
The Electric Storage Battery Co., Philadelphia	35,065.17
Niles, Bement, Pond Co., 111 Broadway, New York	309,559.87
Bonney-Floyd Co., Columbus, O.	51,614.09
Puget Sound Iron & Steel Works, Tacoma, Wash	42,768.61
Pennsylvania Seaboard Steel Corp., Philadelphia	28,899.84
Pittsburgh Screw & Bolt Co., Pittsburgh	279,505.08
George A. Draper, Hopedale, Mass.	38,835.53
Worden-Allen Co., Milwaukee	72,985.81
Baldt Anchor & Chain Co., Chester, Pa.	20,464.54
Wisconsin Motor Mfg. Co. Milwaukee, Wis.	30,027.49
Universal Rolling Mills Co., Bridgeville, Pa.	35,751.95
George H. Smith Steel Casting Co., Milwaukee	83,352.96
Combustion Engineering Corp., New York	36,050.95
International Harvester Co. of New Jersey, Chicago	84,215.99
Taylor-Wharton Iron & Steel Co., High Bridge, N. J.	40,395.06
Middletown Car Co., Pittsburgh	62,284.40
Peerless Motor Car Co., Cleveland	205,598.33
Joseph T. Ryerson & Sons (Inc.), Chicago	$1,018,015.00
Colt's Patent Fire Arms Mfg. Co., Hartford, Conn.	99,841.10
Western Electric Instrument Co., Waverly Park, Newark, N. J.	41,551.95
Cleveland Welding & Mfg. Co., Cleveland	98,750.70
McKinney Steel Co., Cleveland	171,184.19
Acme Steel & Malleable Iron Works (Inc.), Buffalo	38,015.21
Curtiss Aeroplane & Motor Corp., Garden City, Long Island	241,258.35
Wichita Motors Co., Wichita Falls,	

Tex.	40,320.30
Joseph E. Thropp, Earlton Terrace, Everett, Pa.	23,286.00
Chicago Hardware Foundry Co., North Chicago, Ill.	28,024.54
Union Rolling Mill Co., Cleveland, O.	60,336.97
The West Virginia Rail Co., Huntington, W. Va.	28,764.87
Locomotive Superheater Co., New York	103,639.03
Mace Iron Mining Co., Minneapolis	68,003.11
American Chain Co. (Inc.) Bridgeport, Conn.	21,621.12
Michigan Bolt & Nut Works, Detroit	24,023.91
Landis Machine Co., Waynesboro, Pa.	28,602.00
Willys Overland Co., Toledo, O	555,690.08
Berkshire Iron Works, care of Lavino Furnace Co., Philadelphia	48,841.58
Foster Bolt & Nut Mfg. Co., Cleveland	42,441.35
Onondaga Steel Co., Syracuse, N. Y.	28,768.95
Electric Storage Battery Co., Philadelphia	42,389.03
Perry Iron Co., Pickands Mather & Co., Cleveland	44,488.94
Wallace Barnes Co., Bristol, Conn.	30,896.80
Submarine Boat Corp., New York	36,579.06
Vichek Tool Co., Cleveland	28,077.55
J. H. Williams & Co., Brooklyn	131,477.76
Electric Controller & Mfg. Co., Cleveland	47,089.57
Imperial Brass Mfg. Co., 1200 West Harrison street, Chicago	23,211.36
Willard Storage Battrey Co., Cleveland	178,884.19
National Carbon Co. (Inc.), Cleveland	223,299.51
Republic Motor Truck Co., Inc., Alma, Mich.	55,737.28
Washburn Wire Co., Inc., Phillipsdale, R. I.	20,692.52
Mercer Automobile Co., Trenton, N. J.	23,094.76
Morse Dry Dock & Repair Co., Brooklyn	268,002.65
Diamond Chain Co., Indianapolis	21,092.81
Warren Steam Pump Co., Warren, Mass.	87,816.55
Sharon Steel Hoop Co., Sharon, Pa.	121,553.39
Bristol Mfg. Corp., New Bedford, Mass.	111,366.36
Rogers Brown Iron Co., Buffalo	29,872.05
American Chain Co. (Inc.), Bridgeport, Conn.	36,251.83 58,106.59 38,155.42
The Autocar Co., Ardmore, Pa.	66,455.06
Allen S. Davison Co., Philadelphia	80,504.49
Standard Engineering Co., Ellwood City, Pa.	37,979.14
De La Vergne Machine Co., New York	40,000.00
Hefferman Engine Works, Seattle, Wash.	42,450.19
Brightman Mfg. Co., Columbus, O.	28,176.07
Burd High Compression Ring Co., Chicago	66,073.08
Detroit Steel Products Co., Detroit	21,812.82
Prest-O-Lite Co. (Inc.), New York	66,544.38
Avery Co., Peoria, Ill.	25,540.77
Eastwood Wire Mfg. Co., Belleville, N. J.	42,174.40
Ross-Tacony Crucible Co., Tacony, Philadelphia	30,111.11
Steel Sales Corp., Chicago	49,473.55
Tuthill Spring Co., Chicago	27,854.86
Chicago Screw Co., Chicago	55,313.00
S. Obermayer Co., Chicago	20,591.89
S. Obermayer Co., Chicago	22,863.87
E. L. Essley Machinery Co., Chicago	31,263.20
Twin City Forge & Foundry Co., Stillwater, Minn.	54,247.50
American Locomotive Co., New York	735,442.35
Robesonia Iron Co. (Ltd.), Philadelphia	91,961.76
Warren Manufacturing Co., New York	45,509.90
Prest-O-Lite Co. (Inc.), Indianapolis	64,894.21
Donner Steel Co. (Inc.), Buffalo	139,466.79
Albion Malleable Iron Co., Albion, Mich.	25,320.35
Teal Lake Iron Mining Co., New York	21,082.97
Standard Shipbuilding Corp., Shooters Island, N. Y.	172,574.47
Norton Iron Works, Ashland, Ky.	171,846.78
Manning, Maxwell & Moore, New York	48,500.99
Driver Harris Co., Harrison, N. J.	22,407.37
Denver Rock Drill Mfg. Co., Denver	32,951.52
Chas. M. Schwab, New York	71,789.39
Merchant & Evans Co., Philadelphia	40,446.24
Whitcomb Blaisdell Machine Tool Co., Worcester, Mass	55,280.70
Colorado Milling & Elevator Co., Denver, Colo.	25,116.29
Gartland Toledo Foundry Co., Toledo.	20,069.81
Lima Steel Casting Co., Lima, O.	23,127.38
Latrobe Tool Co., Latrobe, Pa.	50,170.83
Whyel Coke Co., Uniontown, Pa.	27,309.15
Frick & Lindsay Co., Pittsburgh	70,113.73
Roane Iron Co., Chattanooga, Tenn.	27,639.35
Cleveland Crane & Engineering Co., Wickliffe, O.	42,774.74
The Cleveland Tractor Co., Cleveland	164,035.77
The Kirk-Latty Mfg. Co., Cleveland	33,825.69
New York Yacht, Launch & Engine Co., Morris Heights, N. Y.	23,415.33
American Steel Export Co., New York	226,606.82
The Carnahan Tin Plate & Sheet Co., Canton, O.	185,509.81
E. J. Lavino & Co., Philadelphia	38,677.80
Allen S. Davison Co., Pittsburgh	20,092.61
Gary Screw & Bolt Co., Gary, Ind.	94,730.01
Cleveland Automatic Machine Co., Cleveland	23,941.20
The Heald Machine Co., Worcester	40,010.36
General Refractories Co., Chester, Pa.	58,636.06
Union Steel Casting Co., Pittsburgh	87,427.21
National Foundry Co., Erie, Pa.	36,221.42
Whitehead & Kales Iron Works Detroit	27,085.04
The Kempsmith Mfg. Co., Milwaukee	36,160.77
National Spring Co., New Castle, Ind.	40,041.11
The Piston Ring Co., Muskegon Heights, Mich.	69,033.52
Ingersoll-Rand Co., 11 Broadway, New York	99,812.54
Isaac G. Johnson & Co., Spuyten Duyvil, N. Y.	44,041.78
The Pullman Co., Chicago	94,437.32
Crucible Steel Co. of America, New York	104,810.01
Babcock & Wilcox Co., New York	221,918.15
Pratt & Whitney Co., New York	251,143.24
Crampton & Knowles Loom Works, Worcester, Mass.	38,044.93
Rogers, Brown & Co., Cincinnati	38,692.06
R. K. Le Blond Machine Tool Co., Cincinnati	30,007.80
Aluminum Co. of America, Pittsburgh	555,102.53
American Tool Works Co., Cincinnati	23,505.54
Filer & Stowell Co., Milwaukee	46,216.74
Grand Detour Plow Co., Diron, Ill.	29,044.61
Gramm-Bernstein Motor Truck Co., Lima, O.	24,439.29
Valley Mould & Iron Corp., Sharpsville, Pa.	378,261.04
The L. S. Starrett Co., Athol, Mass.	65,092.52
Taylor-Wharton Iron & Steel Co., High Bridge, N. J.	143,787.70
The Buda Co., care of J. Marvin Haynes, Washington	152,956.58
Eastwood Wire Mfg. Co., Belleville, N. J.	56,371.58
Modern Tool Co., Erie, Pa.	33,442.79
Columbus Bolt Works Co., Columbus	40,695.67
Continental Bolt & Iron Works, Chicago,	115,113.44
Green Engineering Co., East Chicago, Ind.	53,783.37
Perine Machinery Co. (Inc.) South Seattle, Wash.	23,900.74
Grace Rainey Rogers, Paul J. Rainey, and Roy A. Rainey, trustees, estate of W. J. Rainey, 52 Vanderbilt Avenue, New York City	71,468.95
New Jersey Zinc Co., 160 Front Street, New York	264,587.83
Western Automatic Machine Screw Co., Lake and Foster avenue, Elyria, O.	46,205.90
A. J. Lindemann & Hoverson Co., 421 Cleveland avenue, Milwaukee	20,436.06
Sparks-Withington Co., Jackson, Mich.	95,187.78
Bonney-Floyd Co., Columbus, O.	51,614.09
The Austin Co., Cleveland	326,593.74
The Billings & Spencer Co., Hartford, Conn.	47,143.97
Bartlett Hayward Corp., Baltimore, Md.	463,422.16
National Foundry Co. Erie, Pa.	36,221.42
Dilworth Porter & Co. (Inc.), Pittsburgh	143,978.57

Exhibit Machine Tools in Southern City

Birmingham, Ala., Jan. 19.—The first operating exhibition of machine tools ever made in this district is being held at the show rooms of the Young & Vann Supply Co., this city, with machinery being shown in motion and doing actual work and tools of various kinds being demonstrated. Among the exhibitors are American Tool Works Co., Cincinnati; Barnes Drill Co., Rockford, Ill.; Brown & Sharpe Mfg. Co., Providence, R. I.; Chisholm-Moore Mfg. Co., Cleveland; Cincinnati Electrical Tool Co., Cincinnati; Cleveland Twist Drill Co., Cleveland; Colonial Steel Co., Pittsburgh; Jewell Belting Co., Hartford, Conn.; Kearney & Trecker Corp., Milwaukee; Norton Co., Worcester, Mass.; Skinner Chuck Co., New Britain, Conn.; Smith's Inventions, Inc., Minneapolis; Henry G. Thompson & Son Co., New Haven, Conn.; and Warner & Swasey Co., Cleveland.

Acquire Part Interest in Republic Carbon Co.

Aluminum Co. of America, the Carborundum Co., and associated interests have acquired recently a part interest in the Republic Carbon Co., Niagara Falls, N. Y., and have taken over the management, according to announcement by F. J. Tone, president of the Carborundum Co. Plans have been made to extend the acquired plants and to enlarge the scope of their operations.

The Republic Carbon Co. was organized in 1920 by the Uihlein interests of Milwaukee. The company was organized for the manufacture of carbon electrodes and a modern electrode plant was constructed at Niagara Falls, N. Y. This plant has been in operation for the past four years, supplying electrodes to electric steel foundries, ferroalloy manufacturers and to the general electric furnace industry. The Uihlein interests still retain large stock interests in the company officers of which are as follows: F. J. Tone, president, I. W. Wilson, vice president, F. H. Manley, treasurer. The general offices including the sales department, of which R. L. Baldwin is sales manager, have been moved to Niagara Falls.

Alfred Nelson Metal Works, Brooklyn, N. Y., has decreased its capital from $30,000 to $20,000.

The Business Trend

January 22, 1925

BY JOHN W. HILL, FINANCIAL EDITOR

THE country's foreign trade statistics for December and the full year of 1924 were remarkable for two facts. One was the large excess of exports. The other was the plain indication of the beginning of an outward flow of gold.

The aggregate of exports in 1924 was $4,588,266,000. This was a gain of 10 per cent over the total for 1923. It was actually the largest total for many year since 1920. Imports were $3,610,980,000 a decrease of 4.7 per cent from the 1923 figure.

The excess of exports, or balance of trade, for the year was $977,286,000. This compares with $375,949,000 in 1923 and is the greatest excess for any year since 1921.

This huge excess came in the face of low European exchange rates. However, enfeebled economic and purchasing power abroad began to improve somewhat in the closing months of the year, due almost entirely to the influence of the Dawes plan.

Europe Buys Food

With increasing financial strength, Europe was able to come into the American markets for food, which was needed to supply the world deficiency of grains; and for raw materials, needed to get reviving industry under way.

As a result, exports of wheat and of cotton rose to great peace time heights. Copper exports have been in exceptional volume also. The large amounts of exports of these commodities have improved the economic position of the groups producing them. This in turn is having an important stimulating effect upon general domestic trade.

The December record of exports shows a value of $443,000,000. That was the highest total for any December since 1920. But it was lower than the total for either November or ctober. The peak of 1924 exports was passed in October.

Imports Increase

December brought an increase in imports, the total being $334,000,000, compared with $296,350,000 in November, and $288,305,000 in December 1923. Greater imports reflect rising domestic prices, big purchasing power in this country and increased buying of raw materials by industries.

In 1924 the excess of imports of gold was $258,072,000, compared with $294,072,000 in 1923. Since 1919 the incoming tide has amounted to $1,555,000,000 more than the outflow.

But in December the tide was reversed with an excess of imports over exports of nearly $30,000,000. Europe, particularly Germany, is taking up the loans raised here in the form of gold. The result will be to speed Europe's financial recovery and to lessen the danger of gold inflation here.

An indication that business is expanding is found in the rise of commercial loans of leading member banks of the federal reserve system. They were $8,222,019,000 in the latest week reported, against $8,189,000,000 one month ago and $7,781,600,000 one year ago.

The Barometer of Business

Weekly Comparison

	Last week	Week before	One month ago	One year ago	1913
Buinsess failures ..	529	552	468	530	...
Cash Ratio Fed. Res. System %..	76.0	74.6	73.9	81.0	...
Loan rate, 4-6 mos N. Y. %..	3½	3½	3½	5	5¼
Aver. price 25 industrial shares ..	$135.13	$135.43	$130.22	$127.11	$58.19
Aver. price 25 railroad shares ..	$79.53	$80.88	$79.87	$60.35	$82.97
Av. price 40 bonds	$82.97	$82.57	$81.96	$77.15	$93.00
Car loadings week ended Jan. 3 ..	765,727	646,884	968,256	706,288	*745,055
Commercial loans 743 member banks (000 omitted)	$8,222,019	$8,205,684	$8,189,223	$7,781,600	.....

*1920

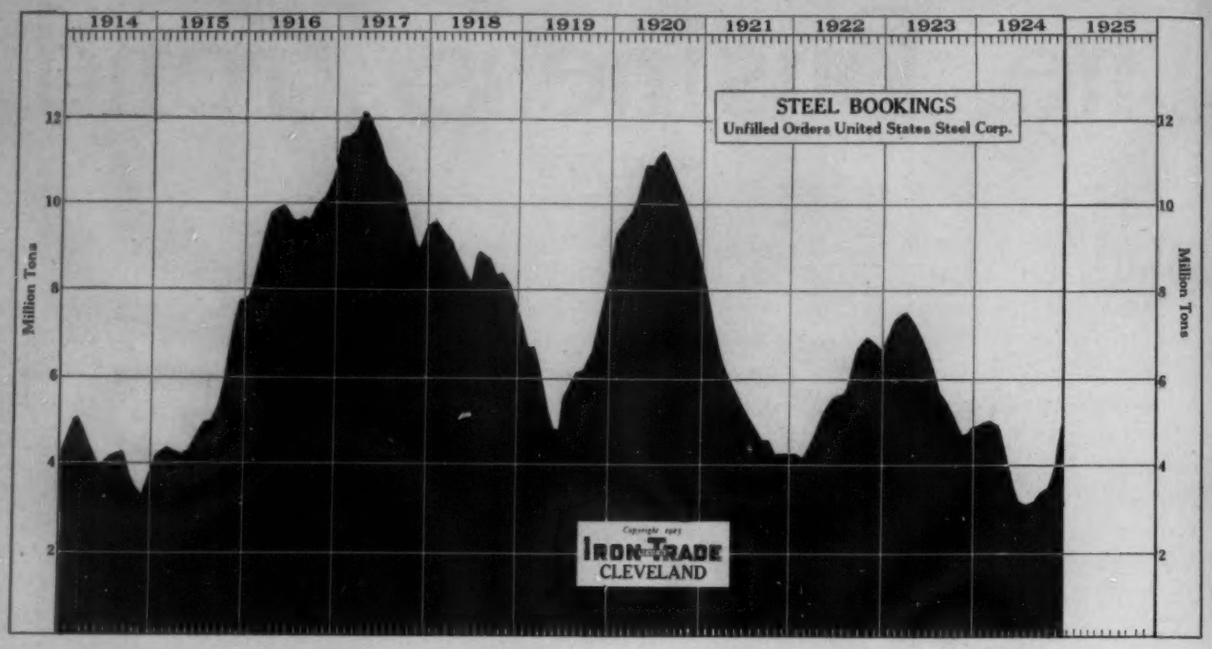
Foreign Exchange (Demand)

	Normal	Last week (close)	Week before	One month ago	One year ago
Sterling	$4.86	$4.77	$4.78	$4.70	$4.32
Francs	19.3c	3.39c	5.35c	5.38c	4.50c
Lira	19.3c	4.17c	4.19c	4.27c	4.35c
Marks	23.8c	23.8c	23.8c	23.8c	....

Monthly Comparison

		One Month before	One Year ago	1913 Mo. average
Dodge Building awards in 27 states (sq. ft.)	46,800,000	49,012,200	48,096,000	31,250,000
Business failures:				
Number	2,040	1,653	1,841	1,336
Liabilities ...	$45,279,281	$31,123,281	$51,614,730	$22,732,000
Exports	$443,000,000	$494,000,000	$426,665,500	$233,195,000
Excess of gold imports	**$29,400,604	$13,160,407	$31,929,697	††$630,716
Bureau of labor price index	157	152.7	151	100
Bradstreet's price index	150	146.4	143.6	100
Economist's British price index ..	178.6	178.2	168	100
Nat'l Industrial Con. board living cost index	*165.2	165	165.3	‡100
New incorporations	$734,854,000	$574,096,000	$955,632,000	$49,301,000
Railroad net earnings	*$93,177,560	$127,105,000	$86,720,000	$59,301,000

†Excess of gold exports. ‡July, 1914. *November. **Excess of gold exports.

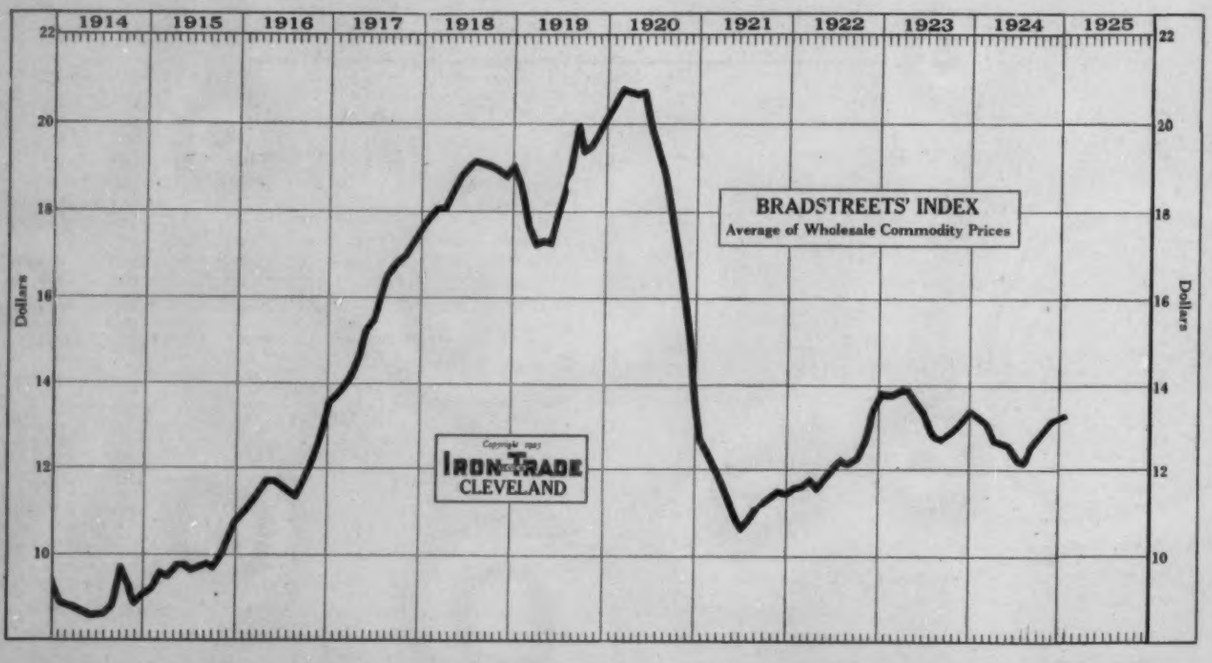


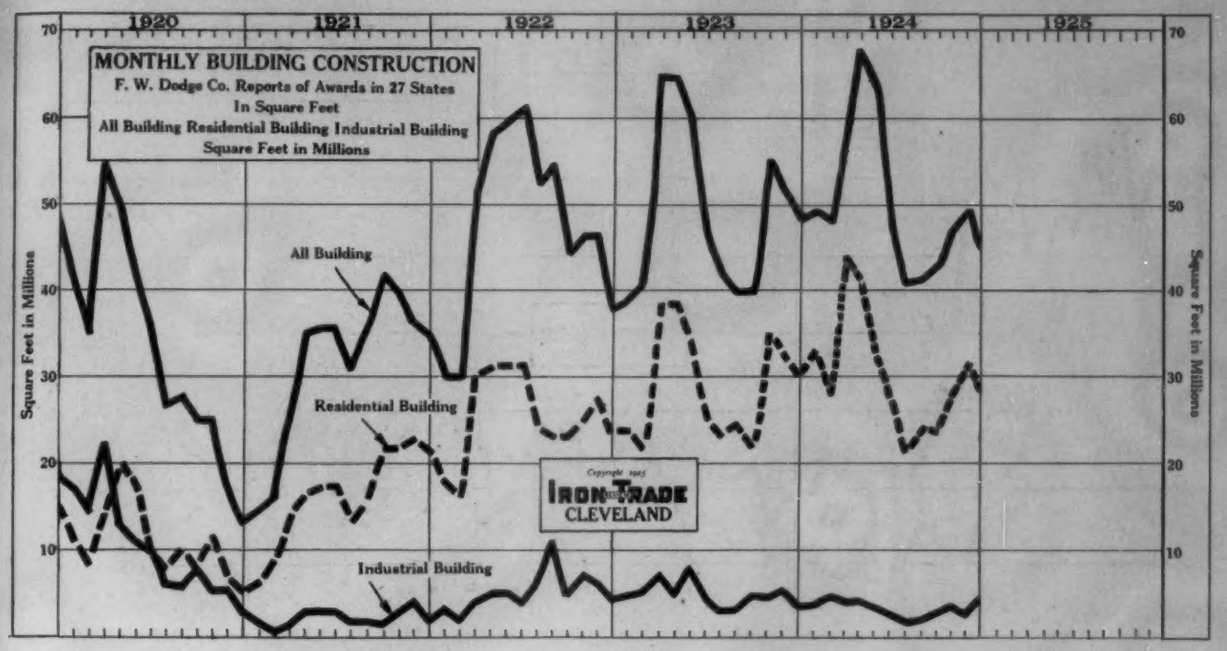
Steel Bookings

THE recent phenomenal gain in unfilled orders of the United States Steel Corp. has resulted from the reduced state of users' inventories, the general recovery of business and the firmer tendency of prices. In December, bookings increased 784,707 tons. This was the largest gain since January, 1920, and it has been equaled or exceeded only seven times in the history of the company. The aggregate of orders at the close of the year was 4,816,676 tons, the highest since February, and a gain of nearly 50 per cent since July.

Bradstreets Prices

THE price movement at the start of 1925 is definitely upward. Bradstreet's index of wholesale values on Jan. 1 showed an advance of 3 per cent over the level of one month before. Since the low point of 1924 the rise has been 13.9 per cent. The index now stands 5 per cent above the level of 12 months earlier. It is 31 per cent above the bottom level of 1921, and 50 per cent above the 1913 average, but 33 per cent under the 1920 peak. The most striking advances have been for farm products. Industrial prices are now rising also.



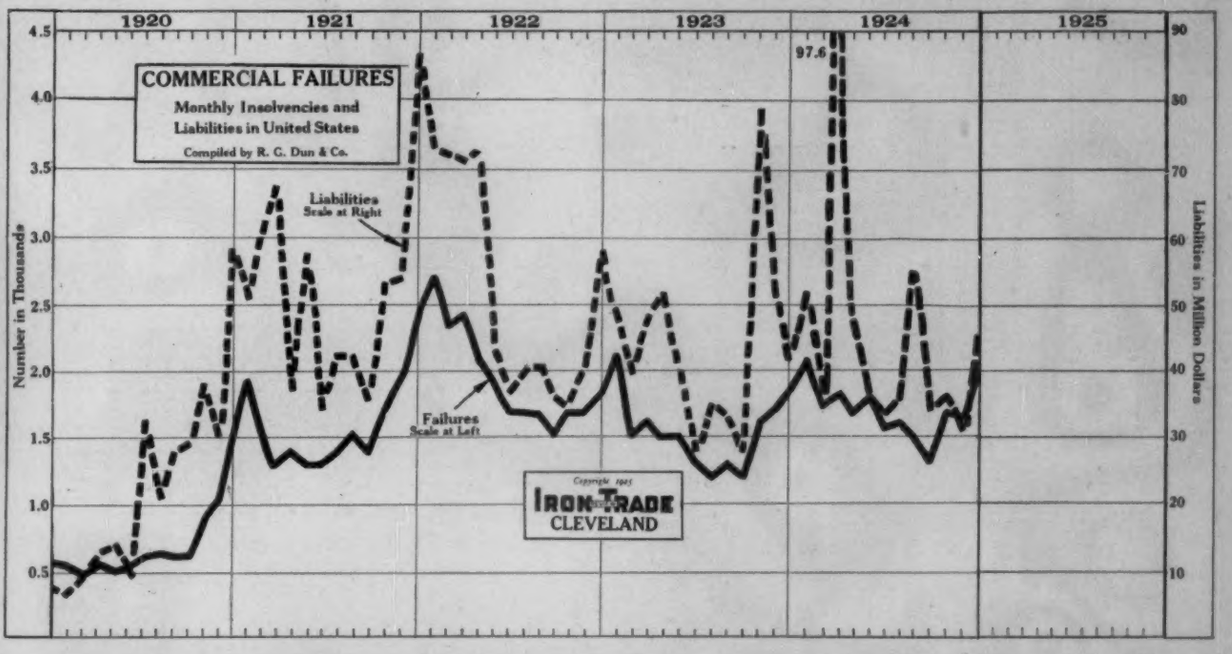


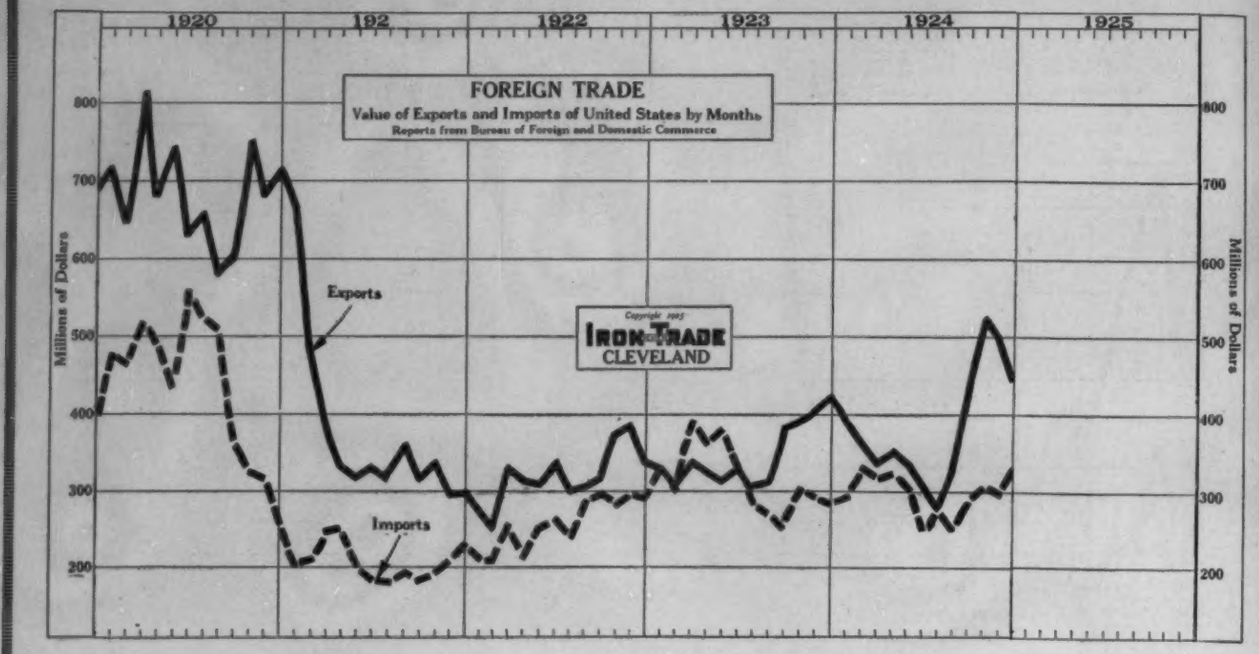
Building Construction

TENDENCIES in the building industry were plainly evident in December. The volume of awards for residential work declined, while that for industrial building increased. This is in conformity with indications that the housing shortages have been largely overtaken. Increased industrial activity, however, is causing growing needs for industrial building, for the first time in months. Total building in December was off slightly. Aggregate of awards during 1924 was 605,224,000 square feet against 597,755,800 square feet in 1923.

Commercial Failures

DURING 1924 there were 20,615 commercial failures with aggregate liabilities of $543,225,449. This was an increase over the 18,718 failures in 1923 for $539,386,806. The number of insolvencies in 1924 represented 1.01 per cent of the total number of companies in existence. In the preceding year .94 per cent of all firms failed and in 1922 the ratio was 1.19 per cent. Failures tended to be for smaller amounts in 1924. The average of liabilities was $26,351 against $28,816 reported as the average in 1923.



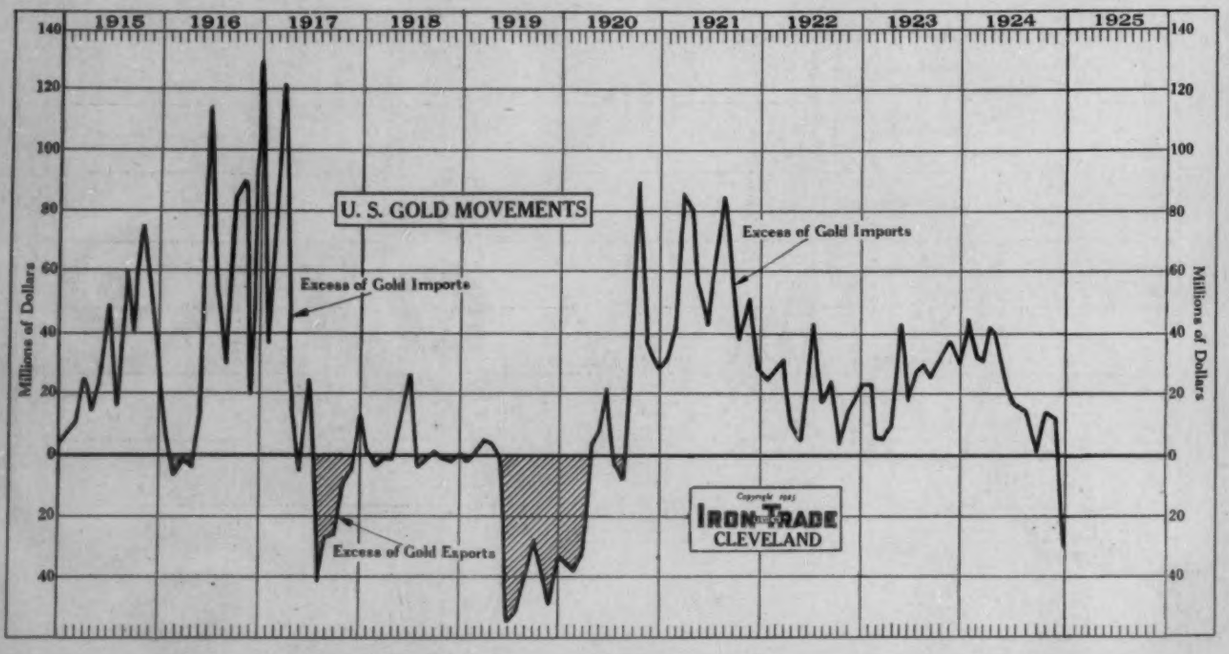


Foreign Trade

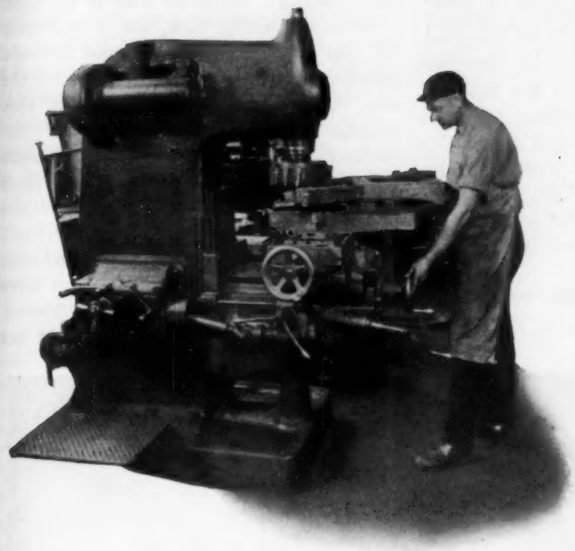
MORE active domestic industry, good purchasing power and rising prices are attracting increasing amounts of imports. In December the value of imports into the United States was $334,000,000. This was the largest total for any month since May, 1923, and the largest for any December since 1919. Exports of $443,000,000 were larger than any December since 1920. The year's exports amounted to $4,588,266,000. The excess of exports over imports was $977,285,606 against $375,427,117 in 1923.

Gold Movements

THE tide of gold movements has reversed in the last few weeks. In December there was an outgo of $39,674,000, largely to Europe. The excess of exports of gold over imports was $29,400,000, the largest for any month since March, 1920. The outward movement of gold after a prolonged inflow expresses Europe's greater financial strength. Germany, in particular, is taking the credit established by her $100,000,000 loan in the form of gold. The draining off of our excess gold lessens the danger of gold inflation.



Taking Up the Postwar Slack



How a New England Manufacturer, Left High and Dry by the Armistice with a Million Square Feet of Idle Floor Space, Staged a Brilliant Comeback

By H. R. Simonds

Fig. 1—During the war this miller helped make machine guns; today it is shaping parts for a machine for washing metal parts

WHEN the war ended a large New England manufacturing plant found itself with about a million square feet of floor space and thousands of machine tools, all virtually idle because of the abrupt abandoning of military programs. The problem of rehabilitation was attacked intelligently and vigorously. Today, after five years of careful planning and untiring effort, the plant is operating profitably at almost full capacity.

In brief this is what the Colt's Patent Fire Arms Mfg. Co., Hartford, Conn., has accomplished since the war. Even now the work of transformation from military to peacetime operation is not complete and the extent of the changes made cannot be appreciated by an outsiders.

Early in 1914 the plant had a well balanced production and demand with a well ordered plant and a working force of 800 employes. In 1918 this army of

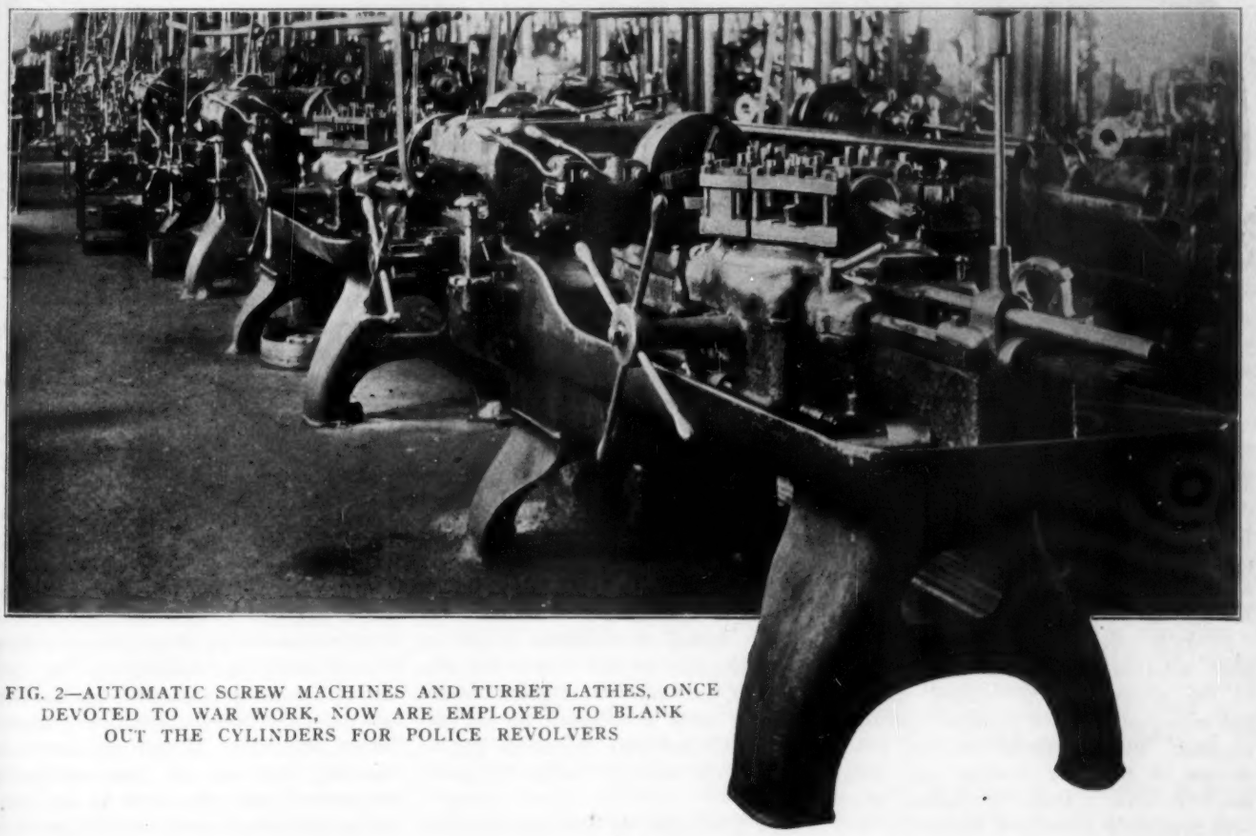


FIG. 2—AUTOMATIC SCREW MACHINES AND TURRET LATHES, ONCE DEVOTED TO WAR WORK, NOW ARE EMPLOYED TO BLANK OUT THE CYLINDERS FOR POLICE REVOLVERS

800 workers had grown to close to 10,000 and the plant itself had tripled in size. The original 300,000 square feet of floor area had been increased to approximately 1,000,000 square feet. With the exception of about 130,000 square feet acquired in a plant at Meriden, Conn., the expansion was effected at the Hartford plant. Although constructed hastily to meet an emergency, the new buildings were of modern design and well adapted for manufacturing purposes.

In 1918 when in full operation, the plant afforded an excellent illustration of the achievement of modern science and management. The combined energies of 10,000 workers entered into the production of Browning machine guns and small firearms. Daily production records previously considered impossible became a matter of routine. However, the mere totals, staggering as they are, fall far short of telling the real story.

In order to operate successfully machine guns must have no flaws or inaccuracies in their construction and as production increases inspection must also increase. Tools must be kept in order. in 1918 about 660 toolmakers were working at the Colt plant at Hartford. Such fever heat production of as sensitive an article as a machine gun is perhaps only possible during a condition such as that occasioned by the war. For the most part, each man in the plant realized that this work contributed to the nation's cause and that failing to do his best somehow was like failing to save a comrade.

This, then was the situation in 1918. Then came the armistice and with it an immediate loss of the stimulus from within and the demand from without. Such was the background upon which a new peacetime enterprise was to be built.

Without wasting time, the management set out to do what it could toward adapting plant and organization to the new condition. It was a difficult task because other plants with similar experiences were attempting to do the same thing. The great overdeveloped plant was an established fact which could not be ignored, yet the buildings could scarcely be sold at any price because of the great number of others that were offered for sale and the few buyers. Similarly, manufacturing space could not be rented. Apparently there was but one alternative, and that was to find something to manufacture which would help utilize the space and cut down the overhead.

This is what the officials of the Colt's Patent Fire Arms Co. decided to do. First, they assumed that the peacetime demand for small arms would be approximately the same as in the first part of 1914 and to this end they moved the proper equipment and established a small arms manufacturing department in a wing of one of the new buildings. Then they looked for other articles to manufacture, and after considerable experimenting and investigating they started making dishwashing machines and were sufficiently encouraged with the result to set apart and properly equip a dishwashing machine

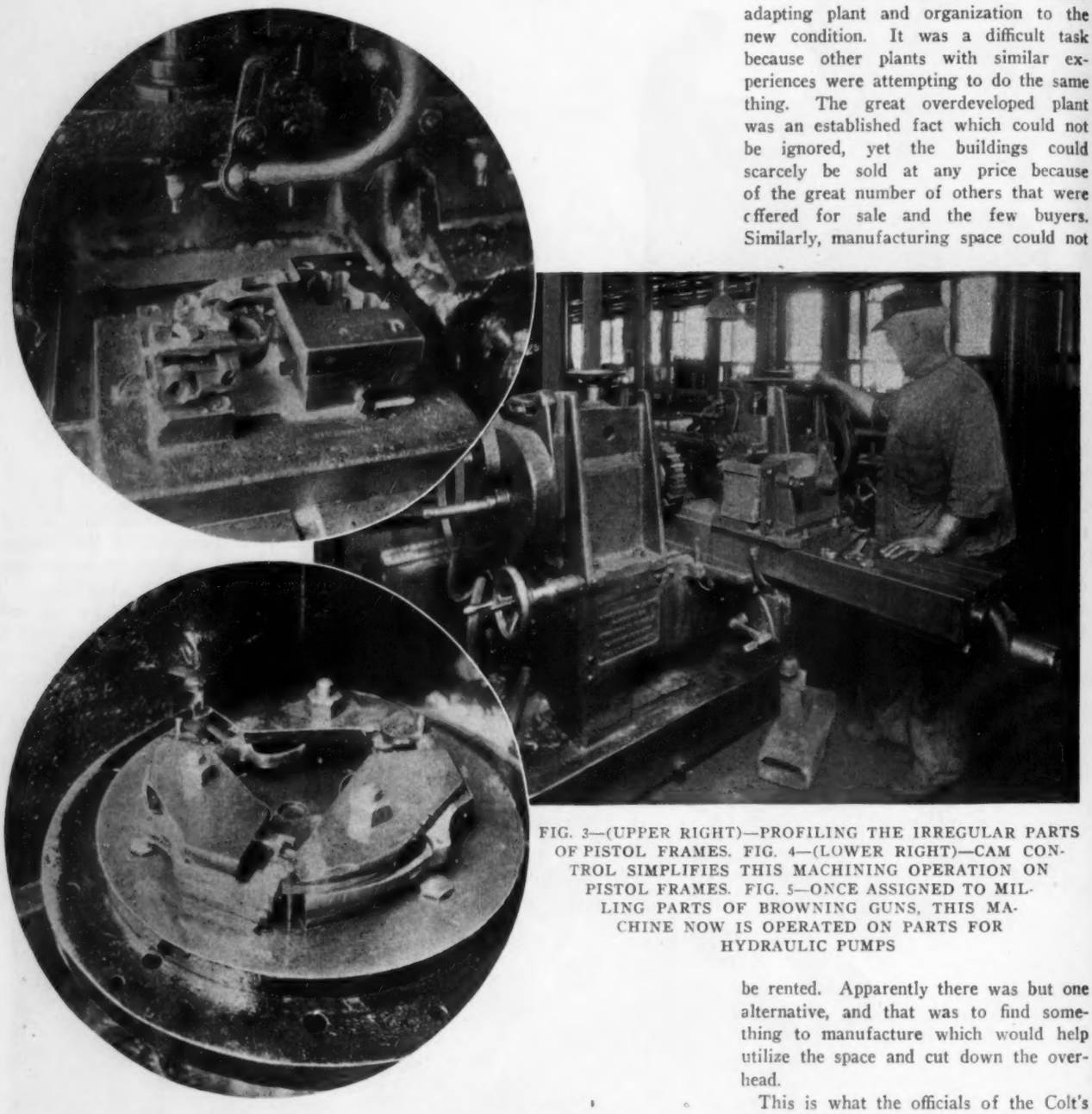


FIG. 3—(UPPER RIGHT)—PROFILING THE IRREGULAR PARTS OF PISTOL FRAMES. FIG. 4—(LOWER RIGHT)—CAM CONTROL SIMPLIFIES THIS MACHINING OPERATION ON PISTOL FRAMES. FIG. 5—ONCE ASSIGNED TO MILLING PARTS OF BROWNING GUNS, THIS MACHINE NOW IS OPERATED ON PARTS FOR HYDRAULIC PUMPS

division. The transfer of tools from the manufacture of firearms to production of dishwashing machines was effected with surprising ease.

The original idea of the dishwashing machine soon was expanded to cover the field of washing metal parts in industry. Investigation showed that a large number of metal pieces in process of manufacture are covered with oil, either purposely to facilitate operations such as stamping and drawing or incidently as a result of contact with oil lubricant used on cutting tools. Such oil covered parts had to be cleaned before they finally reached their market, and if a scheme of washing had proved efficient for dishes, it seemed logical to assume that a similar scheme would be efficient for washing metal.

Washing Machines Saved Day

Gradually the metal parts washing machine was developed and the dishwashing machine demand improved so that the department devoted to washing machines has been successful and has shown gradual expansion during the past few years. However, this was not enough to utilize the vast floor area of the plant, and something else had to be done. Negotiations undertaken with the Johns Pratt Co., manufacturers of fuse boxes and radio apparatus, finally resulted in the purchase of an interest in this company by the Colt company and the removal of all manufacturing operations from the former Johns Pratt Co. plant to the plant at Hartford. The consolidation immediately proved advantageous to both concerns. The Johns Pratt Co. brought an established line of manufacturing which utilized 140,000 square feet of the vacant space in one of the new Colt buildings. Also the Pratt company was able to choose from the large stock of tools available those best adapted to low cost production.

The field covered by the Johns Pratt Co. seemed particularly favorable as the growing radio industry offset the diminishing fire arms demand, but there was still vacant floor space. One building with 70,000 square feet was rented as a store house to the Connecticut Valley Tobacco Corp. and even at that the large plant was not all occupied and officials looked around for further fields of expansion.

One day a letter came to the company asking about the feasibility of using a machine gun to break down the formation of cement in kilns at cement plants. In the manufacture of cement such formations, frequently encountered, necessitate suspending operation of the kiln for their removal. F. T. Moore, general works manager of the Colt plant, was quick to see in this inquiry a chance for developing a new use for machine guns. He arranged with the cement company for a test. A machine gun was set up with the muzzle pointed into the mouth of the kiln and about 500 shots a minute were fired for a period of less than 20 minutes. The formations were completely removed without injury to the kiln itself, and in so short a time that the kiln did not appreciably cool down. In ordinary practice it has been customary to allow a kiln to cool so that men may enter and chip away the formation. This requires at least two days.

Of course, this field has not and is not expected to result in any large demand for machine guns. The important thing is that it aroused an interest in new uses of firearms and in new methods of sales approach, and with this as a start intensive sales effort has brought about a marked increase in the peace time demand for arms, especially for pistols. This gradual increase combined with the addition of some minor items to the list of products has brought the huge plant into practically 100 per cent operation at the end of five years.

The Colt plant today is a highly specialized manufacturing establishment consisting of several units in each of which the processes of production are carried on along independent lines. The tools in the washing machine department have almost without exception been adapted to their new use from tools used in making firearms during the war. Fig. 1 shows a vertical milling machine at work on the frame of a washing machine. This machine was formerly used on certain frame pieces of the Browning machine gun. The automatic screw machines in Fig. 2 were formerly used in producing machine gun parts and are now used in the manufacture of pumps for washing machines. A duplex milling machine which at present finishes the sides of pump bodies formerly finished the sides of machine gun frames.

Pistols turned out in surprisingly large quantities, the capacity at present being 2200 a day. Some idea of the significance of this production may be gained from the fact that in certain designs of pistols 675 distinct operations are required in changing the raw material into the finished article. The revolver has somewhat fewer operations, but the total is still high. The frame, for instance, involves 160 operations. It is made of 1⅝-inch round bar steel which is first forged, then heat treated, and finally completely machined over its decidedly irregular surface. Fig. 3 shows a special profiler fixture developed at the Colt plant for cutting out certain irregular portions at the central part of the frame. The guide point shown at the right of the tool follows around in the master block at the right and in this way regulates the movement of the cutter which comes in contact with the frame at the left.

Fig. 4 shows an interesting operation on the outside of the grip portion of

"Shooting Up" a Cement Kiln

Machine Gun, Firing 500 Shots a Minute, Does Work Formerly Requiring Two Days

TRY as hard as you can, the chances are you cannot think of any use of a machine gun except that for which it is designed—a wartime weapon. But here is a new one, as unusual as it is efficient.

RECENTLY a letter came to the Colt's Patent Fire Arms Mfg. Co. inquiring of the feasibility of using a machine gun to break down the formation of cement in roasting kilns. Ordinarily when these formations are encountered, the kiln has to be shut down, and the hot walls allowed to cool until workmen can enter and chip away the cement obstruction. At least two days were required for this operation.

GENERAL MANAGER F. T. MOORE of the Colt company was quick to see the possibility of adapting a machine gun to this job. Arrangements were made for a demonstration and an automatic gun was mounted at the mouth of a kiln. Shots were directed at the cement formations at the rate of 500 every 60 seconds. At the end of 20 minutes the firing ceased and inspection showed that the encrusted cement had been entirely removed without injury to the shell of the kiln. Moreover the task was completed so quickly that the loss of heat was almost negligible.

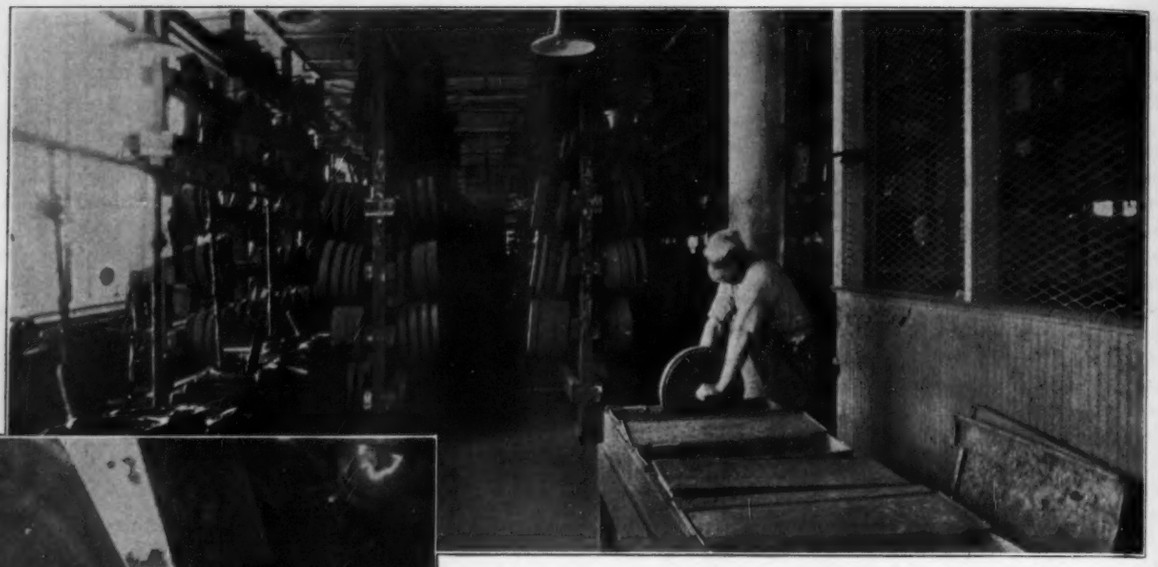


FIG. 6—CURVED SURFACES OF REVOLVER AND PISTOL FRAMES ARE POLISHED ON SPECIALLY SHAPED WHEELS. FIG. 7—BECAUSE THE GRINDING AND POLISHING OPERATIONS ARE SO IMPORTANT, ALL ABRASIVE WHEELS ARE WASHED AND REFINISHED EVERY NIGHT

the frame. Here three frames are mounted on the chuck. The chuck is then revolved while a cam guide regulates the position of the cutter so as to give the desired curving contour to each frame.

Other parts of the revolver follow through special machining operations. The cylinders are made of high carbon steel bars which are heat treated and then blanked out on automatic screw machines. The center hole is first accurately drilled and reamed, and then the six cartridge chambers are drilled, one at a time, on an automatic jig.

The barrel requires the most careful attention of any of the parts and most of its operations are on specially built machines. The drilling operation is unique. The barrel revolves in its jig and the drill revolves also although at a different rate. The drill is a specially constructed tool with a deep groove down one side and a hole through its central portion. While drilling is progressing air is forced through the hole and escapes back through the deep groove carrying the steel chips with it, and thus insuring greater accuracy.

After the machine operations have been completed, the various parts are given a final heat treatment and are then sent to the polishing and finishing department.

All commercial arms are given an exceptionally high polish on all exposed metal parts and this calls for many unique abrasive operations. Generally speaking all curved surfaces are polished on formed abrasive wheels. From 15 to 20 different wheels are used in finishing the frame piece shown in Fig. 6. The abrasive surface of each wheel conforms to some portion of the curved profile of the frame. Thus the wheel shown in the illustration conforms to the inner side of the grip. This wheel must have a heavy overhang in order to accommodate the trigger guard during grinding.

Because of the many peculiar forms required, the types of wheels have been carefully studied and an elaborate department is devoted exclusively to their construction. Fig. 7 is a view in this department. Generally speaking the wheels have a hard wood base which is turned to the desired shape and then covered with leather, painted with glue, and then rolled in warm powdered abrasive of the desired fineness. Some of the smaller wheels for special uses are cut out of solid slabs of walrus or buffalo hide.

The V groove on the back part of the handle is an unusually difficult place to polish and the wheels developed for this operation are thought to be the most peculiar of any employed in general manufacturing anywhere in the country. They are made with a sharp edge built out of leather and projecting a distance of about an inch and a half at right angles to the wooden body of the wheel. The V-shaped pieces are slipped over this sharp edge to be polished and the operation is of such a delicate nature and the clearances are so small that even slight inaccuracy in the wheel will cause the piece to be gripped by the wheel and thrown with alarming velocity out of the operator's hand.

Authority To Discuss Metal Corrosion

In his recent book, "Corrosion of Metals," Evans has pointed out that "the study of metallurgy—the making of metals—appeals directly to a limited number of persons; namely, those connected with the manufacture of metallic materials," but "the study of corrosion—the unmaking of metals—has an interest for all who use metals, a far larger class." Probably this explains the popular interest in the subject. This interest is augmented by the National Research council, which through its committee on corrosion, is stimulating researches on corrosion through its members, the national technical societies. Waste of natural resources also is being called to attention by several departments of the government.

Millions of dollars annually go to waste

because of the corrosion of metals, so that any contribution toward the prevention of the loss is worth while. Only a few years ago the mechanism of corrosion was thought to be so complicated that no solution could be obtained. With the hope of obtaining practical results quickly, considerable money was spent on tests and practical researches, however, much of the work was of no avail because the theory was relegated to the background temporarily. At present it is being realized that the two should proceed hand-in-hand and because of the fact that much new and valuable work recently has been done by such men as Evans, Bengough, McKay, Speller and Aston, there is now a practical agreement on many disputed theoritical points so that theory and practice are much more ready to work together than at any time in the past.

Because of the great importance of this subject, the Institute of Metals division of the American Institute of Mining and Metallurgical Engineers will have corrosion as one of the chief subjects on the program of its meeting in New York, Feb. 16-19 Dr. Carl Benedicks, directors of the Metallographic Institute of Stockholm, Sweden, has accepted an invitation from the institute to lecture before it on certain phases of corrosion, particularly as it relates to boiler tubes. Dr. Benedicks is particularly qualified to discuss the subject from the physico-metallurgical side of the question and will give the practical engineer some new ideas on the subject.

Sound Business Principles for Machine Tool Builders

As Emphasized by Four Years of Depression

By Ernest F. DuBrul

I

THE machine tool industry's demand is of a dual character:

(a) Expansion demand, and

(b) Replacement demand

Both of these classes of demand vary in intensity with the demand for the products of the tools, and are, therefore, largely outside the control of the tool builder.

II

AFTER cessation of a period of expansion in general industry, not only does expansion demand drop heavily, but replacement demand shrinks below the rate of physical wear out.

III

NEITHER class of demand for machine tools is greatly affected by price. Neither sacrifice of normal profit, nor sacrifice of normal costs is successful in inducing many buyers to so anticipate their wants of machine tools, and to so change their buying habits, as to permit of regular operation at low costs.

IV

DURING periods of non-expansion, when replacements constitute the main element of the limited total demand, the builder offering the most advanced designs will get the larger relative participation, and can command the better price as well.

V

OBSOLESCENCE is an extremely important factor in the industry. A new design is not so important in a peak market when deliveries are the main consideration. But in a slow market, the advanced design not only gets a bigger share of the replacement demand, but also depreciates the value of stocks of parts and finished machines of old designs in the hands of all who may hold such stocks.

VI

TO INSURE permanency in the industry, a company's management must consider the costs of new designs and their accompanying patterns, jigs and fixtures as insurance for the future and not as assets of the present. Unless these costs are covered in current sales, the permanence of the company is jeopardized.

VII

AS THE more skilled managers recognize that new designs are best brought out when business is dull, the consequent obsolescence of old designs and parts makes it most unwise to accumulate stocks in excess of falling current demands. Stocks are best accumulated when an upward movement is plainly evident, but heavy stocks are always dangerous.

VIII

MANAGERIAL policies must be adjusted to the conditions, because the industry's managers cannot change the conditions of demand. Trying to do the latter simply breeds failures of individual companies and disaster to the industry.

IX

DUE to all these conditions, to be successful, management must provide funds—liquid funds—during periods of activity, against the need for such funds during long periods of relative idleness. Unless the industry's customers pay the necessary costs of that idleness in advance, that cost will come out of the industry's stockholders and creditors in the succeeding period of slow business.

X

TO BE financially healthy, a machine tool company's management must not consider such funds as a true profit of the year in which they are accumulated. It must not expend those funds in expansion, nor in dividends, until time clearly demonstrates that a sufficient liquid surplus is on hand to safely carry on, after expenditures for expansion and dividends are taken out.

From consecutive bulletin No. 324, administrative series No. 76 issued by the National Machine Tool Builders' association, 826 Provident Bank building, Cincinnati, of which the author is general manager.

When Buying Castings—
You Should Know

How Design Affects Product; How Patterns Should Be Made; How Costs Are Calculated; How Foundrymen Can Be of Service and What Are Duties of Buyer and Seller

BY W. J. CORBETT

MUCH improvement has been made in quality and methods of producing steel castings and there is no reason to doubt that advancement along these lines will continue. Steel foundrymen have been particularly zealous in the study of manufacturing problems. It is maintained by many who have considered the industry's development in all branches, however, that progress has been relatively slow in those phases that relate to scientific and economic merchandising.

The problem of distribution is recognized by foundrymen as being extremely important. It is largely a problem of education, thus foundrymen should endeavor to enlighten consumers concerning the manufacture of castings. This would enable both users and makers of steel castings to make many adjustments in their customs, particularly in the elimination of wasteful practices.

Responsibility for enlightening consumers of castings about foundry practice rests with those who make and sell the castings, consequently they should use every opportunity to explain to the users of their products the facts which will further friendly relations. The result would be castings produced with a minimum of waste and greater satisfaction to the users. Some of the points that might profitably be explained to consumers are suggested below.

Designing The Castings

Designers of castings and foundrymen should co-operate closely. Sometimes, castings have designs that are impractical from a foundry standpoint, but these designs often can be altered without affecting the utility of the castings. The modified designs would cause no difficulties in making the castings and the purchaser would receive better castings than he might have obtained from the original design. This is particularly true in steel castings, which have a greater shrinkage than iron during the cooling of the metal from a liquid to a solid. Therefore, it is desirable that steel castings be designed in such a manner that shrinkage of the metal can be provided for by the use of suitable feeding heads and pouring gates, thereby obtaining castings having solid sections of metal.

Improper designs frequently are the cause of cracks from the unequal rate of cooling of the metal in adjacent parts of castings, in spite of the foundryman's efforts to prevent these defects by using chills, brackets, fillets, and tie-bars; and by giving proper consideration to the location of gates and risers, the hardness of molds and cores, and the rate of cooling of the casting after it is poured. Many difficulties in making satisfactory castings could be overcome if designing engineers would confer with the foundryman when new castings designs are being made.

Much Loss Is Avoidable

Troubles caused by castings that develop defects in the machine shop, and the consequent delays in the customer's shop due to this, could be minimized by co-operation in design. Loss of the customer's goodwill from defective material, also could be reduced by proper casting design. Rejection in the customer's shop of castings that have proved defective due to faulty design, incurs an added expense to the foundry in replacing the castings. This expense is absorbed in the foundry's production cost, and consequently is reflected in the price of its product. Since the cost to manufacture governs the price of castings, any factor affecting the former affects the latter.

No definite rules that will be applicable to the designing of all castings can be formulated, because each design presents a separate problem. However, due regard must be given to the thickness of metal sections, use of fillets, elimination of sharp corners, intersections of members having different thicknesses, recesses to be cored, and other important details. Foundrymen often can recommend slight changes in design which will permit more rapid production of the castings, and thereby reduced costs. Consultation with foundry representatives enables users of castings to obtain the benefits of the foundrymen's experience with these important factors pertaining to design.

In the past, individual foundries have encouraged their customers to show the weights of castings on the drawings but only recently has any attempt been made to secure the concerted action of all foundries in requesting consumers to follow this practice. Designers and consumers of castings render a service to themselves and to foundrymen when they show on their drawings the weights of castings to be purchased. The correct weight of a casting must be obtained to enable the foundry to calculate the cost of making it, and not merely for the purpose of referring to a schedule of costs or prices classified according to weight. Schedules of this kind are erratic and do not represent the cost of making any particular casting in a jobbing foundry. When the casting has been made on a previous order, its actual weight can be obtained from production records; but when this information is not available, the weight must be obtained from the drawing.

Considerable delay and expense are entailed when it is necessary to calculate weights of castings from drawings. It is not uncommon for a foundry to receive a large number of drawings with inquiries from consumers of castings, and when weights are not specified, much time is lost in waiting for the information to be calculated. Calculating weights requires great cars and accuracy if reliable costs are to be obtained, and it requires considerable time. It should not be done in a haphazard manner because a small variation in the calculated weight from the actual weight, materially affects the cost of calculations.

Estimated Weights an Aid

When a casting is designed, the usual practice is for the engineer or draftsman to estimate its weight. This, of course, is necessary in those instances where it is desired to secure the minimum weight with the maximum strength. It would be desirable for designing engineers to make permanent records of their

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estimated weights by showing them on the drawings of their castings.

The foundryman should secure from customers some facts about the uses for which castings are purchased. This would enable him to regulate his manufacturing operations so that the castings will conform with the customer's requirements. For example, if a certain part of a casting must fit closely with another part of the apparatus or mechanism in which it is used, the foundryman will pay particular attention to this, and plan his operations so that the customer will have no difficulty with the casting in the assembly operation. In such cases, gages might be used on the casting by the foundry inspectors, in order to be certain there are no imperfections to prevent the perfect fitting of assembled parts. Foundrymen sometimes can suggest certain economical changes in a customer's plans when informed concerning the use of a casting in service.

Making The Patterns

Pattern equipment is of vital importance to makers and users of castings, for it has the greatest influence on the cost of production. Hence, it is essential for all foundries to enlighten consumers as to the advantages of providing suitable patterns and core boxes. Many foundrymen have been lax in this respect. In their eagerness to procure orders for castings, they have neglected to insist upon being furnished with proper working tools in the form of pattern equipment. Frequently equipment provided does not permit manufacture in the most economical manner.

The foundry is in business only to secure a fair return on its capital, and if this cannot be secured from castings made from certain patterns, greater profits must be secured from castings made from other patterns.

Patterns should have a rigid construction. A poorly constructed pattern that has a low initial cost often proves most expensive in the end, due to the difficulty in making good castings from it and to the necessity for frequent repairs. When castings are made from a pattern at more or less frequent intervals, the total number of castings during a period of time justifies making the pattern from a hard, durable material, such as hardwood or aluminum. This kind of pattern equipment is economical to the customer. The cost of maintenance for well-constructed pattern equipment is less than that for poor equipment, and this expense, is paid by the customer.

Cheap Patterns Expensive

A cheaply constructed pattern is expensive to the customer, because in addition to the increased cost of making castings from it, the castings produced will not give the same degree of satisfaction that would be obtained from those made from good equipment. Consumers of steel castings have frequently complained to foundries about the castings they receive, when the fault was poor pattern equipment.

Average patternmakers employed by casting consumers are not expected to have as complete knowledge of up-to-date foundry practice as is possessed by the foundryman. Therefore, if casting consumers desire good castings, foundrymen should encourage consultations in regard to the construction of pattern equipment. The plan best for the foundry as well as for the customer, is for the foundry to make the pattern at the customer's expense. When this is not feasible, the pattern should be constructed in accordance with the recommendations from the foundry which is to use it.

No fixed rules can be given for details of pattern construction that will apply to all designs. Nevertheless, there are some things to which consideration must be given in all cases. For example: a pattern must be of such design that a mold made from it will provide adequately for the pouring of the casting, and for the feeding of it while shrinkage of the steel takes place during its solidification. This relates to the use of proper heads and gates which are vital in the production of castings of solid metal sections. Provision for such matters should be left to the foundryman.

Provision of proper fillets at the intersections of the walls of a steel casting often is neglected. Patternmakers either fail to put them on the patterns or use fillets of improper sizes. Proper fillets are necessary on steel castings in order that objectionable defects can be prevented; they must not be too small nor too large. The general design of the casting, the thickness of the adjoining walls of metal, and the foundryman's experience should determine the proper size of fillet to be used. Square inside corners on a casting should be avoided.

Pattern equipment sometimes is received for making castings of more than one design by changing loose pieces on the pattern or core boxes. This is confusing to foundrymen, and requires careful supervision to prevent errors. Foundrymen should advise customers providing such pattern equipment when the cost of producing castings of more than one design from one pattern with changeable parts may be greater than the cost of producing them from separate complete patterns for each design. Although there is a saving in the cost of pattern equipment by using adjustable patterns, the customer can be expected to pay for any extra cost of making castings.

It is a common practice, and one to be discouraged, for patternmakers to refrain from making core boxes for round cores, in the belief that the foundry is prepared

Customs of Steel Foundry Industry

1. *Suitable pattern equipment for economical molding should be furnished by the customer.*
2. *The foundry is not responsible for the correctness of pattern equipment to blue print, except when such equipment is made for the customer under the supervision of the foundry.*
3. *Repairs on pattern equipment should be paid for by the customer, except when occasioned by carelessness on the part of the foundry.*
4. *Patterns must have the distinctive colors adopted by the joint committee on pattern standardization, which are the following: Surfaces to be left unfinished should be painted black. Surfaces to be machined should be painted red. Seats of and for loose pieces are to be red stripes on a yellow background. Coreprints and seats for loose coreprints are to be painted yellow. Stop-offs are to be indicated by black diagonal stripes on a yellow base.*
5. *All patterns, core boxes, and loose pieces thereof must be properly numbered for identification.*
6. *All transportation charges on pattern equipment to and from the foundry must be paid by the customer.*
7. *The foundry does not carry insurance on customers' pattern equipment.*
8. *Free replacement is made of defective castings if reported and returned to the foundry within a reasonable time.*
9. *The foundry is not responsible for any expense on defective castings incurred by the customer.*
10. *The customer is charged with the cost of molds and cores discarded by the foundry due to change in patterns or core boxes*

to furnish such cores from stock. Stock cores are undesirable from almost every standpoint. The expense saved by not making a core box for each core generally is more than offset by the increased cost to the foundry in making such round stock cores to size so that they will fit the mold, and by the extra cost of cleaning the castings, due to the necessity for removing fins or lumps of metal surrounding holes in the castings caused by the cores fitting the molds improperly. There is no economy in saving one cent by using a stock core and then spending two cents extra for cleaning the casting. When stock cores are used, there is greater likelihood of castings being defective due to the shifting of the cores in the mold and to the sand from the mold or core becoming entrapped in the steel. These details increase the cost of making the castings and lessen the possibilities for making perfect castings at any cost.

Some patternmakers fail to provide coreprints on the cope side of patterns, merely indicating by painting the pattern that the cores cut through the casting at certain points. This is another practice to be discouraged. The cost of cleaning a casting almost invariably is increased when coreprints are not used on the cope side of the pattern, because it becomes necessary to remove from the casting, resulting fins that surround or completely cover the cores on the cope side. Furthermore, the core is much more liable to be shifted from its proper position when there is no core-print on the cope side.

Importance of the construction of core boxes often is disregarded. Core boxes are just as important as the pattern used for making the molds. Many castings are defective because the core boxes have become worn or their parts have become loose or warped out of shape. When a number of cores must be made from one core box during a period of time, it is desirable that the box be made of hardwood or aluminum, the latter being preferable. This is true especially in the case of castings of small and medium sizes, since great precision is required in making small castings. Slight variations in sizes of cores, caused by poorly constructed core boxes, make it difficult to produce satisfactory castings. If hardwood instead of aluminum is used for making a core box, the joint of the box where the sand is scraped off by the coremaker should be faced with sheet metal. This prevents wearing and facilitates making cores true to size.

Proper Painting Important

Patterns should be painted in accordance with the standard practice recently adopted by the Joint Committee on Pattern Standardization, consisting of representatives from the American Foundrymen's association, American Society for Testing Materials, American Society of Mechanical Engineers, Foundry Equipment Manufacturers' association, National Association of Pattern Manufacturers, National Association of Purchasing Agents, Steel Founders' Society of America and American Malleable Castings association. The committee's standard practice for painting patterns is as follows:

"Surfaces to be left unfinished should be painted black. Surfaces to be machined should be painted red. Seats of and for loose pieces are to be red stripes on a yellow background. Core prints and seats for loose core prints are to be painted yellow. Stopoffs are to be indicated by black diagonal stripes on a yellow base."

Foundrymen should require consumers of castings to furnish them with the number of duplicate patterns necessary for economical and rapid production of castings. It is not uncommon for a foundry to receive a single pattern to be used for making a quantity of castings. The foundry then finds it necessary to request the customer to send additional patterns, because the price quoted for the castings was based on the cost of making them from adequate pattern equipment required for economical production. When only a single pattern or one not mounted or suitable for mounting on a matchboard or follow-board for machine molding is provided, the cost of production is much higher than was estimated on the basis of suitable pattern equipment. The increase in price that the foundry would expect to receive in such a case probably would exceed the cost of the additional patterns requested from the customer.

Cost of Castings

The cost of making a casting depends largely on its design and size and not entirely on its weight, because the cost of the steel in the casting is not the major item. Labor and overhead have the greatest influence on the total expense. These two factors are affected mainly by the design of the casting. While most foundrymen realize this fact, apparently many of them have not put it into practice by explaining to consumers the disadvantages and unsoundness of price schedules subdivided according to weights of castings. Schedules for miscellaneous castings are decidedly unscientific and erratic and have no justification. They are unsatisfactory for consumers as well as for foundries because they cannot be established in any manner that is equitable to either.

The time is not far distant when steel foundrymen and the purchasers of their castings will dispense with the use of weight schedules. Castings then will be merchandised, as many of them now are by progressive foundries, on the basis of the cost of production of castings from each pattern; that is, there will be a separate price for each kind of casting, based on the cost of making it, plus a fair profit commensurate with the capital risk in the foundry business. It is only logical and in accordance with good business methods that this should be the condition. This plan will tend toward stability, economy and intelligent conduct of business.

Every foundry should have and make constant use of a method for calculating the costs of individual castings. It is essential that this be based on the principles of cost-finding in use by the other members of the industry in order to insure uniformity in cost-finding methods. A method for finding the costs of individual castings was developed by the writer and presented at the Milwaukee convention of the American Foundrymen's association last October.

Orders for Small Quantities

Orders for small quantities of castings are more costly to the foundry than orders for larger quantities, this being especially true for small castings. If a foundry were to investigate the cost of handling an order for castings, it would find certain expenses such as those for clerks who enter the requisition and issue works orders, for pattern delivery and examination and often for much of the selling effort, to be the same for an order for one casting as it is for an order for one thousand castings. Assuming that the foundry's cost of entering and preparing an order for execution is $2.50, it is obvious that this amount must be added to the expense of filling it.

Other expenses besides these are chargable to an order regardless of its size and tend to make orders for small quantities costly. If the foundry has some difficulty in making the castings when production is begun, a few scrapped castings on an order for a small quantity increases the total cost materially. For instance, five defective castings on an order for ten castings represents a loss of 50 per cent, while five defective castings on an order for one hundred castings from the same pattern represents a loss of only 5 per cent. The larger order provides an opportunity for the foundry to overcome the difficulties by gaining experience, and to reduce the loss due to defective castings which, of course, is absorbed in the cost of production.

Delivery troubles are more common with orders for just a few castings than for larger quantities and are annoying to both the foundry and its customers. Frequently, one casting on an order for five or ten castings cannot be found in the shop and has to be made again.

View of new steel house just completed in the vicinity of London.

While a few of these houses have been built they still are considered in the experimental state

Britain Experiments with Steel House

BY VINCENT DELPORT
European Manager, Iron Trade Review

TOGETHER with the unemployment problem, Great Britain has to face a serious shortage of houses, especially for the working classes. In some ways both these problems are connected, and while the British government is making efforts to ease the situation by vast building plans backed by subsidies, enterprising individuals have endeavored to find a way of building moderately priced houses under a mass production system and in such a way that unskilled labor could be used. Thus work would be found for a number of unemployed and at least a partial solution would be found respecting the housing shortage. As will be seen, such plans would also indirectly stimulate the activities of steelworks which owing to the restricted demand in certain lines are partially idle.

The more promising results have been obtained by the construction of so-called steel houses and two schemes in particular have attracted wide notice, the first experiments having been conducted in Glasgow, Scotland. One design is that by Lord Weir, and the manufacture of the steel parts of these houses is at present done at the works of G. W. J. Weir, Ltd., Cathcart, Scotland. The other design is recommended by the duke of Atholl and the parts are manufactured by William Beardmore & Co., Ltd., Glasgow, Scotland. The fact that Neville Chamberlain, minister of health of Great Britain, is taking great interest in the subject and has invited over a score of local authorities to have a few houses built as an experiment indicates that the construction of steel houses is no more in the domain of theory.

Houses built to Lord Weir's design have a timber frame with external walls made of steel sheeting. It has been pointed out that such structures have been built and used for many years. Bungalows are often made of corrugated sheets applied on wooden framing. The interesting feature of the present experiments is that the steel parts entering into the construction of the houses can be standardized, thus reducing cost and saving time in the manufacture and assembling of the parts and allowing the use of unskilled labor for erection and mounting.

The plumbing, decorating, etc. remain are done just as in any other ordinary type of house. However, all plumbing is standardized. The Weir houses are erected upon a concrete foundation; the wooden frame is covered externally with steel sheets and internally with patent composition sheets, with an air space of 4 inches between the two coverings. The roof may be covered with any kind of materials. It is claimed that with proper care these houses can last at least 50 years, and that the risks of dampness, condensation, changes of temperature, have been satisfactorily eliminated.

The Weir houses can be obtained in two types. The Cathcart bungalow contains one living room 18 feet by 11 feet 4 inches, one bedroom of 166 square feet and one bedroom of 108 square feet, also a bathroom, a scullery, a larder and a coal cellar. The other type known as the Eastwood house is similar, but designed to be erected in semidetached pairs. The cost of building such houses is not actually known but it was stated by Lord Weir that the price per house for the Cathcart type would be £360 ($1700) for an order of 500 houses, £330 ($1560) for an order of 500 to 1000 houses and £300 ($1420) for over 1000 houses. These prices do not include fencing, drainage, roads, etc. In any case there would be saving of time in the erection of the houses, since the parts would be manufactured in the workshop, and the erecting of the houses, is rapid. The interruption of work by wet weather is eliminated.

In the steel houses built for the duke of Atholl, the outer walls are made of large steel sections, ⅜-inch thick, properly treated to eliminate condensation on the inside. The internal walls are made of asbestos material and air space is reserved between the outer and inner walls. The roof can be covered with tiles or slate.

The houses can be built as bungalows or apartment houses which can be let at moderate rentals.

Other plans have been put forward where the use of cast iron plates is suggested. However, it is not yet possible to figure the cost of production of these structures.

Many objections are brought against the construction of steel houses, not only by local authorities who do not consider such structures suitable for their particular climate, but also by the associations of builders who object to houses being built by unskilled labor under conditions where the building trade wages do not apply. Criticisms are also offered respecting the monotony of type and actual costs, since it is pointed out that the cost of maintenance would be considerable. At present it can be safely said that steel houses are only a partial solution of the housing problem and they are only at the experimental stage. Perhaps the greatest interest lies in the possibilities of standardization, but these can only be taken advantage of if large quantities are ordered, and even then it is doubtful whether this factor would be sufficient to cause a demand for steel large enough to be a real help to steel producers. A revival of the ship-building trade and the releasing of rail orders would be received with more justified enthusiasm.

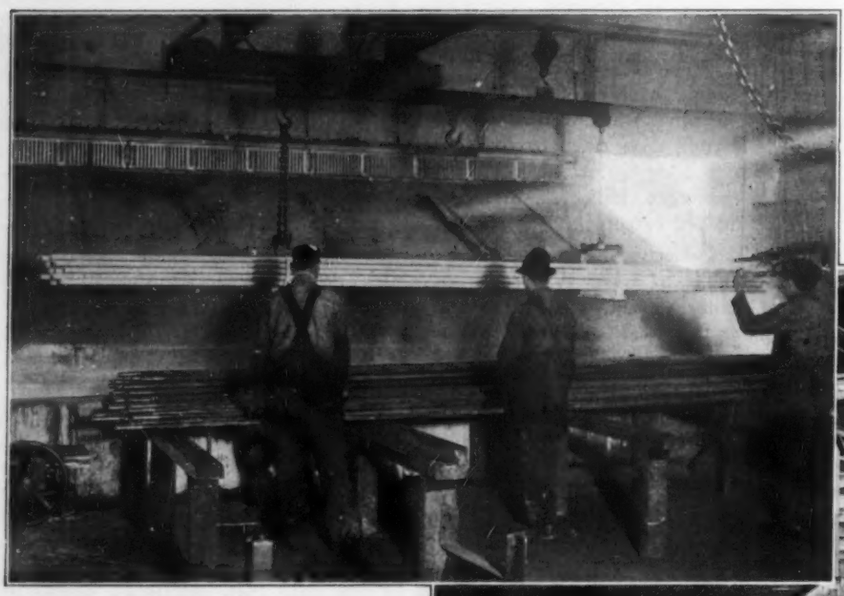
Has Important Part in New England Market

PURCHASE of the Frasse Steel Works, Inc., at Hartford, Conn., by the Union Drawn Steel Co., Beaver Falls, Pa., has brought into the limelight a cold steel finishing plant which for several years has played an important part in the New England market. This plant, built along modern lines about four years ago and added to at different intervals since then, consists of a 3-story main building 75 by 190 feet with a 1-story bay 125 by 410 feet. This bay has sawtooth roof and steel frame construction. In addition, a loading platform has a broad roof extending over a spur track so that cars can be loaded and unloaded under cover. The floors of both buildings are of concrete and overhead crane service is provided throughout the plant. A large part of the outward delivery is by truck, and to facilitate this a steel rolling door permits the entrance of trucks directly into the building where they may be loaded by the main plant crane.

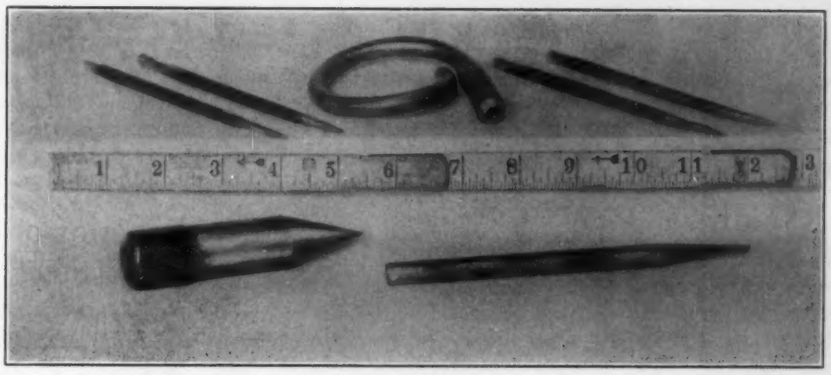
Plant equipment includes lime bath apparatus, wire draw frames of modern design, straightening tools, both for wire and for shafting up to 4 inches in diameter, and complete annealing and heat treating equipment including oil-fired lead baths 82 inches in length. Some of this equipment is shown in the accompanying illustration.

In the past the Frasse Steel Works Inc. has purchased hot rolled bars according to its own specifications and then cold finished them in sizes varying from 3/6 to 3 inches for stock. It also made up and carried in stock in large quantity, drill rod in 3-foot lengths. This drill rod was polished in an ingenious way on a machine designed at the plant and adapted from a tool made by the Production Machinery Co., Greenfield, Mass. The drill rod department had a production of 10,000 pounds per week. Storage capacity of the plant is 10,000 tons of hot rolled bars and 5500 tons of finished steel.

The Frasse family, identified with the Peter A. Frasse & Co. Inc., which was the former owner of Frasse Steel Works Inc., has been associated with the steel warehouse business for 75 years or more. Henry F. Frasse made the first model of the machinery for driving Fulton's steamboat. He was succeeded in his machine shop and steel warehouse enterprise by Peter A. Frasse who died in 1891. In 1892 the business was incorporated with John L. Howe as president.



(UPPER LEFT)—HANDLING OF BARS THROUGH THE LIME BATH AT THE PLANT OF THE FRASSE STEEL WORKS, INC., NOW OWNED BY THE UNION DRAWN STEEL CO., IS FACILITATED BY A DOUBLE DRUM CRANE. (LOWER RIGHT)—A SIX-BLOCK WIRE DRAW FRAME IS USED FOR DRAWING WIRE UP TO ½-INCH IN DIAMETER



A collection of copper crystals of various sizes and forms. They were produced by extremely slow cooling

Single crystals ¾-inch diameter and 6 inches long, or of less diameter and greater length, have been made

Copper Conductivity Improved

Production of Large Crystals Cuts Losses of Electric Current by Approximately 13 Per Cent

PRODUCTION of copper that is capable of transmitting 13 per cent more current than present conductors recently was announced by Dr. W. P. Davey of the research laboratory of the General Electric Co., Schenectady, at a meeting of the American Association for the advancement of Science. These results were obtained with large single-crystals of copper, the experimental production of which was accomplished a short time ago in the Schenectady laboratory. Use of single-crystal copper at present is not commercially possible because of the delicacy of the crystals and because of the difficulties of manufacture, but from a scientific standpoint the results of these investigations are far-reaching.

Will Aid Power Transmission

What the increased conductivity may mean to the electrical industry is apparent from a consideration of the problems of electric power transmission. One of the difficulties of long distance power transmission has been the energy loss due to resistance of the wire. Use of high voltage for transmission with this voltage stepped down at the point of consumption by means of transformers, has permitted the use of small diameter wire, with a consequent considerable saving in installation costs. Should single-crystal copper conductors become a commercial possibility, even smaller wire could be used; practically 12 per cent of the copper used in transmission lines could be released for use in other fields.

With the new copper, it would be possible to transmit power 113 miles with the same voltage drop as is now experienced on a 100-mile line. Similarly, the underground cables and electric power subways of cities, so many of which are taxed to capacity with their loads of today, could carry additional loads of 13 per cent without taking up more space.

The single copper crystals were made by gradually heating and cooling pure copper in an electric furnace. When molten metal is cooled quickly extremely small crystals are formed; if the melt is cooled slowly, the crystals are larger. Employing the method of P. W. Bridgeman, Dr. Davey cooled the melt so slowly that only one crystal was formed, and that included all of the metal. By this method he was able to produce single ⅞-inch crystals 6 inches long, or crystals of less diameter and greater length.

In a crystal, the atoms, or unit particles of the substance, are built up in regular fashion. The crystals of copper, for example, are made of tiny cubes, with atoms of copper at the corners and centers of the faces of each. The large crystals grow in such a direction that the atoms are arranged in columns along the length of the crystal. It is this regular arrangement of the atoms which, it is believed, give to the single crystals their superior conductivity when compared with ordinary polycrystalline copper in which the crystals are small and the arrangement of atoms more chaotic.

A LARGE COPPER CRYSTAL MAY BE BENT WITH EASE, BUT IT IS BENT BACK ONLY WITH DIFFICULTY

Increase 13 Per Cent

Preliminary calculations made by Dr. Davey led him to believe that single-crystal copper would show an increase of 14 per cent in conductivity. By means of measurements involving such quantities as 36/100,000 volt and 81/1,000,000 ohm, the increase in conductivity was determined as 13 per cent. The measurements were made by two methods, and the values checked within 0.25 per cent.

So that no errors would be introduced because of differences in specimens, all were made with one sample. First, the conductivity of the single crystal was determined. Then the crystal was hammered, swaged and annealed so that its structure was destroyed and ordinary copper produced, and the conductivity again determined. Ordinary copper is surpassed only by silver in conductivity, but the new form of copper has even higher conductivity than silver.

One of the first facts discovered about the large single-crystal copper was that the specimens could be bent double with one finger, but that strength was required to straighten them afterwards. A crystal the size of a lead pencil, if given a jerking motion, bends like a stick of soft wax. Having been bent once, however, it

tends to have the properties of ordinary copper, for the bending has transformed the large crystal into a mass of smaller ones.

Auto Parts Manufacture Increases Rapidly

Establishments engaged primarily in the manufacture of motor vehicle bodies and parts in 1923 reported products valued at $1,013,113,010, an increase of 148.3 per cent as compared with 1921, the last preceding census year, according to data collected by the department of commerce in its biennial census of manufacturers. The industry is made up of those manufacturing establishments whose principal products are motor vehicle bodies, tops, wheels, radiators, fenders, wind shields, transmissions, mufflers, axles, steering wheels and various other assemblies and parts, not including engines or complete chassis.

Motor vehicle bodies and parts also are manufactured to some extent as secondary products by establishments engaged primarily in other industries. The value of such commodities thus produced outside the industry proper in 1921 was $24,902,031, an amount equal to 6.1 per cent of the total value of products reported for the industry as classified. The corresponding value for 1923 has not yet been ascertained. Disregarding the value of bodies and parts used for replacement purposes and assuming its entire output to have been sold to manufacturers of complete motor vehicles, this industry contributed nearly two-fifths of the total value of all motor vehicles manufactured during 1923. The value was $2,611,447,430.

Of the 2122 establishments reporting for 1923, 272 were located in New York, 2 in Illinois, 208 in Ohio, 201 in California, 175 each in Michigan and Pennsylvania, 98 in Indiana, 97 in Massachusetts, 94 in New Jersey, 78 in Missouri, 61 in Wisconsin, 44 in Washington, 42 in Connecticut, 37 in Texas, 36 in Minnesota, 30 in Iowa, 28 in Maryland, 20 in Colorado, 17 each in Tennessee, Kentucky and Oregon, 16 in Nebraska, 12 in Rhode Island, 11 each in North Carolina and Virginia, and the remaining 113 were scattered throughout 20 other states and the District of Columbia.

Experiment With Direct Steel Process

Experiments on a new direct process for making steel electrically are being carried on by the Uddeholms Aktiebolag, Uddeholm, Sweden. Thus far the process has been proved successful in a small laboratory furnace of 200 kilowatts capacity. The quality of steel made in this way has been entirely satisfactory but it is as yet impossible to say in what degree the process will be cheaper compared with former methods, when it is placed on a strictly commercial basis. The company is working on a furnace of from 2000 to 3000 kilowatts in order to further test the possibilities of the new process.

Melting Bronze in Electric Furnace

BY F. C. HEATH

THE greatest potential field for the electric furnace in the nonferrous industry, is in the medium sized foundry. In such foundries, as in our own, molding, melting, pouring and shaking out is a continuous process, with all operations going on at the same time. I believe that no one of our molders will have more than 16 molds standing at any one time, and from 8 to 12 of these will just have been poured. This means that our tonnage of 23,000 pounds per day is produced with the minimum amount of molding space. This condition requires a small furnace to preserve the flexibility of the coke fires.

The 250 pound electric furnace in use in our plant is exceedingly flexible, since it is necessary to wait no longer than a half hour if a quick change in the melting program is found to be imperative. We melt approximately 15 or 16 different bronzes, although no more than five or six are run in any one day. This also requires flexibility.

We have in operation at the present time five furnaces built by the Detroit Electric Co., Detroit, which are of the rocking type melting 230 pounds to the charge or the capacity of a number 70 crucible. Each of these furnaces are equipped with a 100 kilovolt ampere transformer built by the Kuhlman Electric Co., Bay City Mich., operating at an input of 90 to 100 kilowatt.

We originally equipped the furnaces with 60 kilovolt ampere transformers and produced around 12 to 15 heats per day. Our melting record now stands at 21 heats in one day, starting the arc at 6:15 a.m. and finishing at 3:15 p.m. After the first two or three heats, which always require more energy than the succeeding heats, the average time of melting was 17 minutes, with a loading and unloading time of 6 minutes, making a total of 23 minutes for the complete cycle.

The operating advantages are as follows: The human element is largely eliminated and the field for obtaining labor widened; greater uniformity of product is obtained, each heat being melted under the same conditions as every other heat, as nearly as it is possible to do; the use of the crucible is eliminated except for carrying metal from the furnace to the molds; everything put into the furnace is melted and taken out with the resultant loss, according to our two days test of 0.6 per cent. We have found a melting loss of 2 per cent in our other type.

As mentioned previously, the linings are the limiting factor in melting. With the rate of input of 75 kilowatt, we had a lining last 2000 heats, but with the rate of input at 90 to 100 kilowatt it is not economical to run the lining over 1000 heats.

The average consumption of electrical energy per ton of our class of bronzes is 325 kilowatt hours with an electrode consumption of 6½ pounds per ton. We melt mixtures of 88 copper 10 tin 2 zinc; 80 copper 10 tin 10 lead; 85 copper 5 tin 5 zinc 5 lead; 85 copper 5 tin, 9 lead 1 zinc principally.

The following are some tests of the physical properties of coke and electrical fired furnaces, that have been made, analysis of metal being 85 copper 5 tin 5 zinc 5 lead.

		Electric melting	
	Coke fired	17 min.	25 min.
Elastic limit	15,565	16,560	16,610
Ultimate strength.	30,900	30,620	28,940
Elongation in 2 inches	17%	17%	18½%

These results show that the quality of metal in either process is equally good, and that fast melting in the electric furnace does not injure the metal.

So far as the comparative cost of melting is concerned, as near as can be estimated, there is about $3.50 per short ton of melt in favor of the electric melting with our equipment. This is an estimate, as we are still running coke and electric fires with the same operators, and it is difficult to separate the costs. However, I feel that this is accurate at the present prices of coke, electricity, etc.

From a paper presented at the Detroit meeting of the American Electrochemical society, Oct. 3, 1924. The author is chief engineer, Federal Mogal Corp., Detroit.

Magnetic Chuck Aids Output

Grinding Operations in Tool-room Simplified by Positioning Work Properly—Costly Setups May Be Avoided by Its Use—Production Higher and Cost Lower Than by Ordinary Methods

BY FRED B. JACOBS

MAGNETIC chucks first were used many years ago principally for locating pieces for surface grinding in tool rooms. Today the magnetic chuck plays such an important part in production-grinding operations of various kinds that without this valuable accessory many common manufacturing operations would become exceedingly difficult, while then cost would be prohibitive. Again, when used properly a magnetic chuck locates work without distortion which is a great aid in intensive production operations where accuracy is essential.

The accompanying illustrations were taken from practical grinding operations and they show graphically how magnetic chucks are used for various purposes. Figs. 1, 2 and 3 are grinding operations at the plant of the Burrows Adding Machine Co., Detroit. Fig. 1 shows how shaving-punch parts are located for grinding. The work is set crosswise on the chuck and brought to bear against a backing piece set square with the platen travel. With the work located in this manner it is a simple operation to grind out the slots in the piece readily. The object of the attachment running from the wheel holder center to the edge of the wheel guard is to keep the backlash in the spindle one way. The device is equipped with a ball center that bears on in the center of the wheel holder. When using the edge of a wheel it is essential that all side motion be eliminated.

An accurate surface grinding job is shown in Fig. 2. It consists of grinding locating plates for test jigs. This is very close work that could not be performed without the use of a magnetic chuck except at considerable expense. In this instance, however, all that is required is to locate the pieces end for end on the chuck face. Without a magnetic chuck it would be necessary to hold the pieces on the machine platen with pinch clamps or to clamp them one at a time in a shoe with pinch parallels. Either method is costly at best as any toolmaker knows to his sorrow when he has tried to an accurate job of surface grinding without a magnetic chuck.

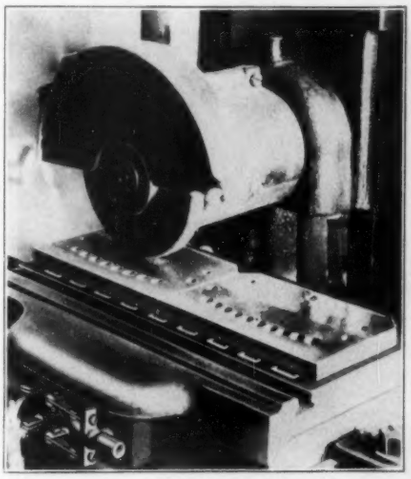


FIG. 2—GRINDING TWO LOCATING PLATES FOR TESTING JIGS AT ONE SETTING

The surfacing operation shown in Fig 3 consists of grinding an accurate punch pad for a subpress die.

Another interesting operation is shown in Fig. 4. In this instance, the work is of a production nature consisting of surfacing the bases of engineers' levels at the plant of the L. S. Starrett Co., Athol, Mass. While this is a comparatively simple surface grinding operation, it demonstrates that a magnetic chuck can be used on a typical production operation with good effect. To grind these pieces without the chuck, it would be necessary to locate each one on the machine platen by means of straps or pinch clamps. This setup would be costly and at the same time the work might be sprung out of shape through the action of the clamps. By using a magnetic chuck,

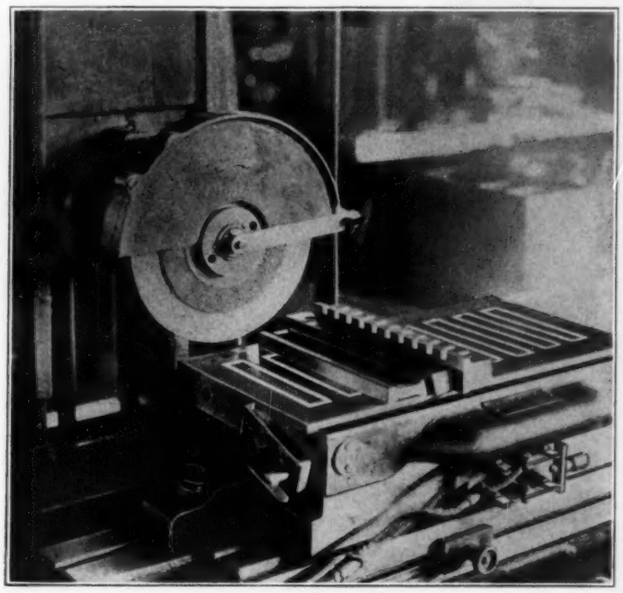


FIG. 1—SHAVING-PUNCH PARTS LOCATED FOR GRINDING ON A MAGNETIC CHUCK

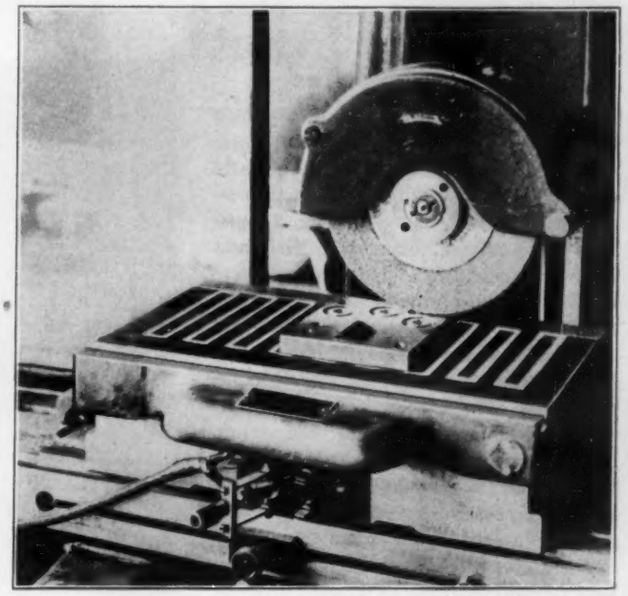


FIG. 3—THE SUBPRESS PUNCH PAD IS LOCATED READILY FOR ACCURATE GRINDING

however, all danger of springing the work is eliminated.

At the plant of the Yale & Towne Mfg. Co., Stamford, Conn., magnetic chucks are used extensively, three interesting grinding operations at that plant being shown in Figs. 5, 6 and 7. The operation shown in Fig. 5 consists of grinding an angle on a thread rolling die. The work is clamped on an adjustable angular holder which in turn is located on the magnetic chuck. This illustration will bring to the mind of the practical man many instances where the magnetic chuck can be used to advantage for locating special fixtures used in grinding work.

An interesting operation consisting of grinding angles on the sides of a die blank is shown in Fig. 6. The work is located between angular parallels which are set directly on the chuck face. By this means an accurate and inexpensive job is assured.

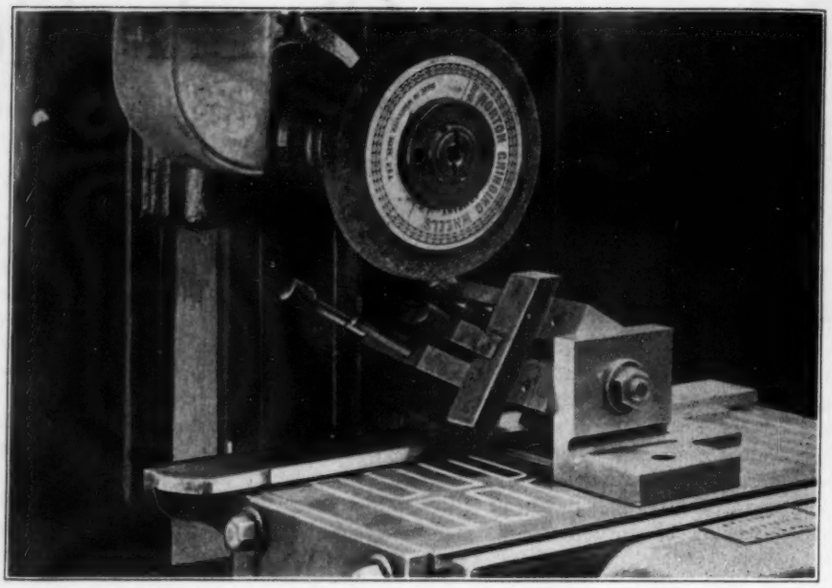


Fig. 5

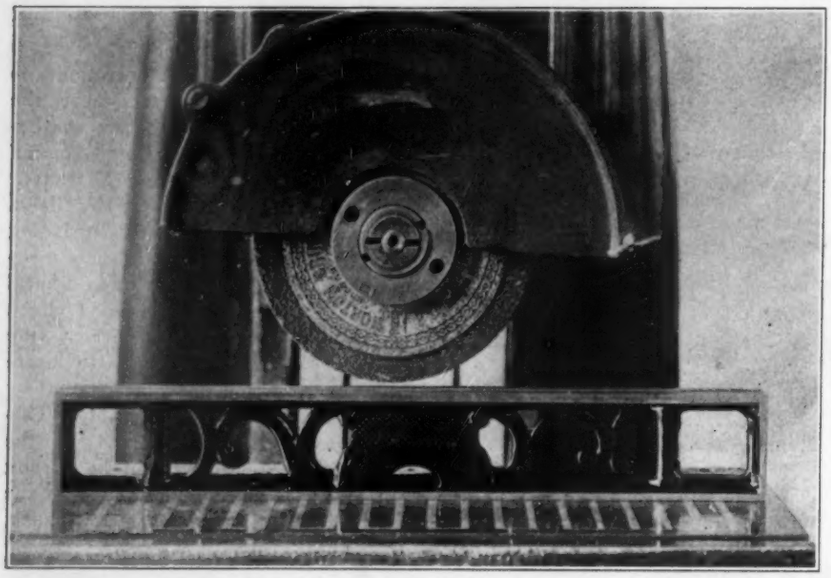


Fig. 4

Fig. 4—Finishing a level base on a magnetic chuck—Fig. 5—Practical setup for finishing an accurate angle—Fig. 6—This die is held between two angular parallels

Snap gages must be ground very accurately. Fig. 7 shows a gage located for grinding-in a shoe which in turn is set on the chuck face. Grinding is performed with a double cup wheel so that both gaging surfaces can be finished at one setting. By locating the shoe on the magnetic chuck, the job can be set up in a minimum amount of time.

Fig. 8 illustrates a practical setup. In this case the work is held between indexing centers which in turn are set on an accurate base, located on the magnetic chuck.

A number of pieces located for surface grinding on a 12-inch rotary chuck fitted to the spindle nose of a universal grinding machine is shown in Fig. 9. This illustration was made

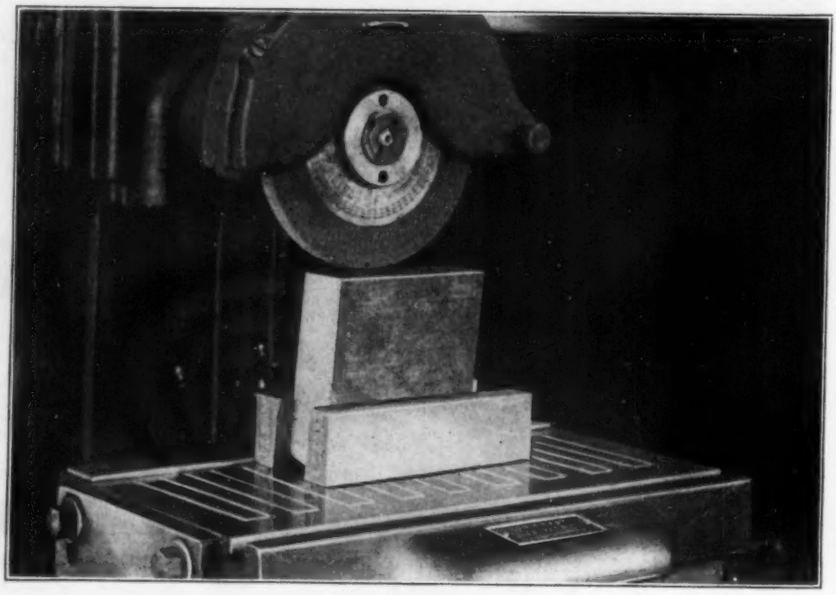


Fig. 6

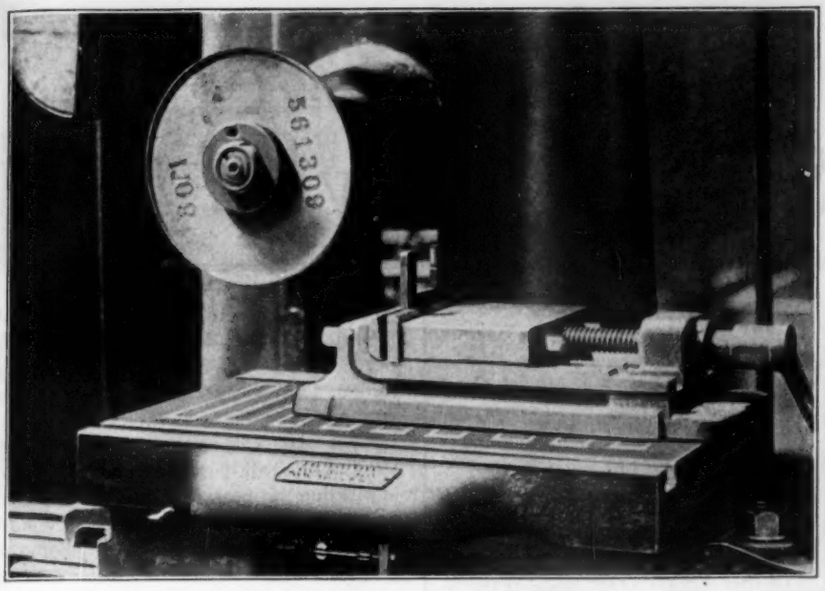


Fig. 7

Fig. 7—Locating a snap gage for grinding both sides—Fig. 8—These parts are mounted on an arbor between centers—Fig. 9—Surface grinding on a rotary magnetic chuck

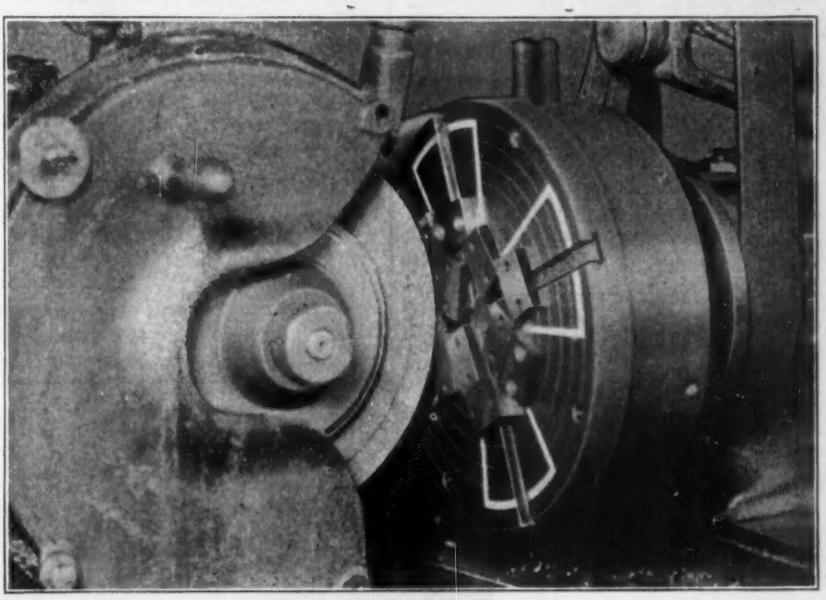


Fig. 9

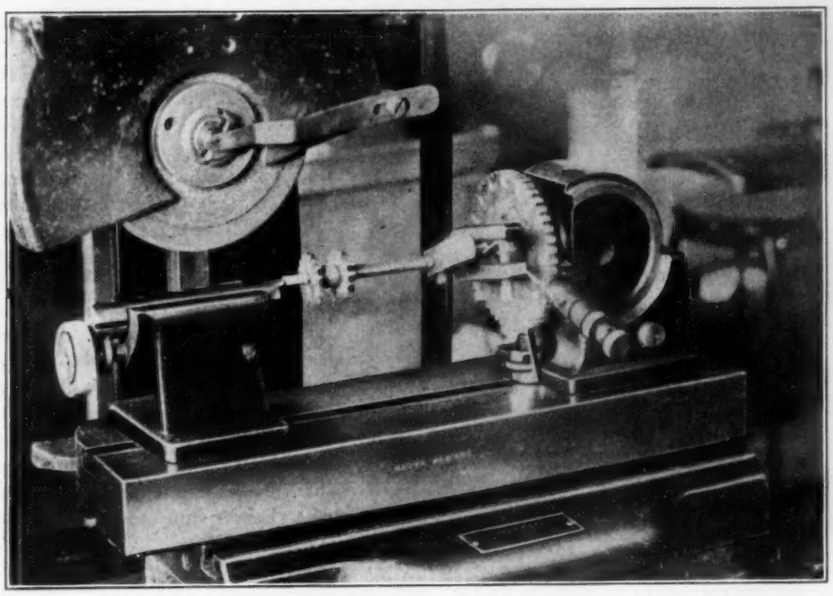


Fig. 8

at the plant of the Landis Tool Co., Waynesboro, Pa. In this case all that is necessary, after the chuck face is set parallel with the platen travel, that is at right angles with the grinding wheel spindle axis, is to locate the pieces in position and feed them past the wheel.

The construction of magnetic chucks presents a problem; first, to the mechanical engineer to determine the intensity of the magnetic pull necessary and other factors in connection with holding the work in position, and second, to the electrical engineer to determine the means of obtaining these requirements without attendant objectionable features. A few of the result desired by the designers may be of interest to those who use the work of development which has been going on for many years.

One of the first considerations was that of reducing the tendency of a magnetic chuck to magnetize parts of the machine tool on which it was used, and also to reduce as far as possible its magnetizing effect upon the work itself. Unlike electrical circuits, magnetic circuits are difficult to insulate, air itself being the best known insulator. Therefore, it is necessary to design pole pieces in such a way as to make magnetic circuits easily and conveniently formed from one to another so that the few lines of flux will have a chance to stray. A low curve of magnetic lines of force from one pole piece to another through the work has an advantage because it entails a minimum magnetizing effect upon the work. When the pole pieces are far apart the lines of force extend well up into the work, whereas if they are close together the lines will be shorter, they will not enter the work as deeply.

Large Uses of Steel In Small Ways

ABOUT 500 tons of steel are required annually for broadcasting towers in this country. In view of the amazing growth of the radio industry, with its more than 600 broadcasting stations, this figure may appear small. Yet even this tonnage may be reduced to half when considering only the telephonic or program broadcasting stations, which for the most part have been established within the past two years and which comprise the vast majority.

The fact is that probably less than 25 per cent of these stations have found it necessary to erect towers to support their antennas. Even some of the largest of these stations do not have towers. The powerful KDKA station of the Westinghouse Electric & Mfg. Co., Pittsburgh, has its antenna suspended to a smokestack.

Further, these towers are of light construction. Ground towers for telephonic stations usually range 65 to 165 feet in height, but seldom vary more than two to six tons in weight. In some cases these towers go up 300 feet, taking perhaps 30 tons, but these are few. That shown in the accompanying illustration, one of the towers on top of the new Gimbel station in New York, is 103 feet in height. Yet it scarcely weighs more than four tons.

Telegraphic or code transmitting towers, as a class, are much higher and heavier. The towers of the Radio Corp. of America on Long Island, range from 450 to 600 feet, and those of the navy department along the coast, range possibly 400 to 500 feet Any one of these towers in itself would likely take 250 tons or more. But this work over the span of 15 years or so of its development, has taken little tonnage on an average yearly basis.

Towers used by telephonic or program broadcasting stations for the most part are standardized and are built of structural steel angles, the physical and chemicals properties of which conform to the Association of American Steel Manufacturers specifications. Shop work is done with lighter fabricating equipment than that employed for the general run of structural shapes. Upon completion of the shop work, all parts are put through a pickling process and then galvanized for protection against weather condition. This necessitates bolting of the parts instead of riveting, so as not to melt the zinc. The usual life of these towers is estimated at about 25 years.

The larger telegraphic, or code transmitting towers, ranging 400 to 500 feet and over, are built with a view to greater rigidity and permanency. Therefore, shapes other than angles alone are used, and are held together by rivets instead of bolts, and as the steel is not galvanized, the structure is painted.

Ground towers and roof towers for radio stations differ in design, inasmuch as the former usually pinnacle to a point, whereas the latter are built with an extra wide spread of the corner legs, both bottom and top. The extra spread at the bottom gives added strength and reduces the corner leg reactions on the supporting roof platform. The increased spread at the top permits the use of a crossarm directly attached to the tower.

Demand for steel for tower work will, if anything, grow smaller as time goes on. In all of North America, including Mexico and Canada as well as this country, there are about 800 broadcasting stations. The tendency now is toward the consolidation of many of these stations. A chain of superbroadcasting stations appears not only possible, but highly probable, according to leading authorities.

Further, the development in transmitting and receiving apparatus is tending to reduce the height of towers. The General Electric Co., Schenectady, N. Y., is erecting an experimental telephonic station,

Radio Towers

THIS is the thirtieth of a series of articles dealing with some of the obscure uses of steel which go far toward absorbing the great American tonnage.

The first article on "Corsets" appeared Nov. 22. Other articles were "Pins," Dec. 6; "Pens," Dec. 20; "Cotton Ties," Jan. 17; "Steel Wool," Jan. 31; "Toys," Feb. 14; "License Plates," Feb. 28; "Spinning Rings and Travelers." March 13; "Hypodermic Needles," March 27; "Card Clothing," April 10; "Shoe Steel," April 24; "Tie Plates," May 8; "Crushed Steel," May 22; "Tacks," June 5; "Skates," June 19; "Knives and Forks," July 3; "Phonograph Needles," July 17; "Surgical Instruments," July 31; "Fence Posts," Aug. 14; "Needles," Aug. 28; "Eyeglass Cases," Sept. 18; "Golf Clubs," Oct. 2; "Fishing Tackle," Oct. 16; "Mechanical Pencils," Oct. 30; "Dental Drills," Nov. 13. "Burial Caskets," Nov. 2; "Pocket Knives," Dec. 11; "Telephones," Dec. 25; "Rat Guards," Jan. 8.

STEEL RIBBON FROM COILS IS AUTOMATICALLY STAMPED INTO BLADE BLANKS

which, it is said, will be the largest in the world. There will be four towers, but none will be more than 300 feet in height.

The influence in this direction is expected to be seen particularly in telegraphic towers. Many of those now in operation were built several years ago, when considerably more importance was attached to the height of towers. Those of the future, it is believed, will be at least 200 feet shorter than some of the taller ones now in operation.

Award Coast Guard Boats

Washington, Jan. 20.—Award for the construction of all of the ten 100-foot steel hull patrol boats for use by the coast guard against liquor smugglers has been made to the DeFoe Boat & Motor Works, Bay City, Mich., at $45,800 each, f.o.b. plant. The Winton Engine Co., Cleveland, was awarded the contract for 20 150-horsepower 4-cycle 6-cylinder diesel engine for the boats at $22,750 per pair of engines, and 10 auxiliary air compressors at $750 each, all f.o.b. works. The Bates & Edmonds Engine Co., Lansing, Mich., was awarded ten 8-kilowatt oil-driven engine generators at $1791 each, f.o.b. plant.

Ore Output Reduced 22 Per Cent in 1924

IRON ore mined in the United States in 1924, exclusive of ore that contained more than 5 per cent of manganese, is estimated for the department of the interior by E. F. Burchard and H. W. Davis, of the geological survey, at 54,021,000 gross tons, a decrease of 22 per cent as compared with that mined in 1923. The ore shipped from the mines in 1924 is estimated at 51,996,000 gross tons, valued at $151,385,000, a decrease of 26 per cent in quantity and of 37 per cent in value as compared with the figures for 1923.

The average value of the ore per gross ton at the mines in 1924 is estimated at $2.91; in 1923 it was $3.45. The stocks of iron ore at the mines, mainly in Michigan and Minnesota, apparently increased from 10,165,875 gross tons in 1923 to 12,150,000 tons in 1924, or 20 per cent. The considerable decrease in output may be ascribed in part to a slowing up in demand for steel and to general reaction in pig iron manufacture during the middle of 1924, following the record year 1923, in which there was some overproduction.

The decrease in the average value of iron ore at the mines of 54 cents a ton was largely due to the lowering of base prices of Lake Superior iron ores 80 cents a ton for the season of 1924. Lesser decreases in values occurred in all the other groups of states except those in the West.

These estimated are based on preliminary figures furnished by producers of about 98 per cent of the normal output of iron ore. They show the totals for the principal iron ore producing states, and, by grouping together certain states, the totals for the Lake Superior district and for groups of southeastern, northeastern, and western states.

About 83 per cent of the iron ore shipped in 1924 came from the Lake Superior district, in which approximately 44,862,000 gross tons was mined and 43,202,000 tons was shipped, decreases of about 24 and 27 per cent, respectively, as compared with the quantities mined and shipped in the year, 1923.

The ore shipped in 1924 was valued at $132,207,000, a decrease of about 38 per cent. These totals include the ore from the Mayville and the Baraboo mines in Wisconsin and ore shipped by rail as well as by water from all mines, but exclude manganiferous ores that contained more than 5 per cent of manganese. The ore is chiefly hematite.

The stocks of iron ore in this district apparently increased from 9,187,288 gross tons in 1923 to about 10,806,000 tons in 1924, or 18 per cent. The shipments of iron ore by water from the Lake Superior district in 1924, including manganiferous iron ores, according to figures compiled by the Lake Superior Iron Ore association, amounted to 42,623,572 gross tons, a decrease of 28 per cent as compared with these shipments in 1923. The average value of the ore at the mines in the Lake Superior district in 1924 per gross ton was $3.06; in 1923 it was $3.62.

The mines in Minnesota furnished 72 per cent of the total iron ore shipped from the Lake Superior district in 1924 and 60 per cent of the total of the United States. The mines in Michigan furnished 26 per cent of the lake shipments and 22 per cent of the grand total. The accompanying table gives the data for the Lake Superior and other producing districts in detail.

Imports of iron ore reported for the 11 months ended Nov. 30, 1924, amounted to 1,861,480 gross tons, valued at $9,656,087, or $5.19 a ton, which is higher than seems consistent with values of domestic ore. The imports for the year 1923 were 2,768,399 gross tons, valued at $11,304,737, or $4.08 a ton.

The reported exports of iron ore for the 11 months ended Nov. 30, 1924, amounted to 585,960 gross tons, valued at $2,360,968, or $4.03 a ton, as compared with exports for the entire year 1923 of 1,116,932 gross tons, valued at $5,305,365, or $4.75 a ton. The statistics of imports and exports were compiled from the records of the bureau of foreign and domestic commerce, an arm of the department of commerce.

American Iron Ore Production Records Compared

	Ore mined (gross tons)		Ore shipped —1923—		Ore shipped —1924—	
	1923	1924	Gross tons	Value	Gross tons	Value
Michigan	14,174,468	12,333,000	14,065,561	$54,110,070	11,293,000	$35,554,000
Minnesota	44,348,296	31,837,000	44,556,053	158,402,788	31,120,000	94,605,000
Wisconsin	871,416	692,000	831,412	2,421,194	789,000	2,048,000
	59,394,180	44,862,000	59,453,026	214,934,052	43,202,000	132,207,000
Southeastern states:						
Alabama	6,783,146	6,842,000	6,922,663	15,540,198	6,386,000	13,333,000
Georgia	117,321	116,000	117,286	300,712	116,000	284,000
Missouri	53,546	86,000	54,348	247,975	86,000	392,000
North Carolina.	59,684	11,000	59,684	161,603	11,000	28,000
Tennessee	267,275	187,000	266,175	677,753	186,000	411,000
Virginia	155,977	78,000	200,966	664,240	82,000	193,000
	7,436,949	7,320,000	7,621,122	17,592,481	6,867,000	14,641,000
Northeastern states:						
New Jersey ..	307,733	65,000	349,435	1,403,723	99,000	412,000
New York	541,922	250,000	722,096	3,242,229	305,000	1,419,000
Pennsylvania .	993,441	782,000	988,586	2,264,485	781,000	1,240,000
	1,843,096	1,097,000	2,060,117	6,910,437	1,185,000	3,071,000
Western states ..	677,217	742,000	677,207	1,301,951	742,000	1,466,000
Grand total ...	69,351,442	54,021,000	69,811,472	240,738,921	51,996,000	151,385,000

Heat Treaters in Winter Meeting

Cincinnati Chapter Is Host to Sectional Meeting of American Society for Steel Treating—First Day Devoted to Technical Program and Second to Machine Tool Plant Visitation

GEARING for power transmission, high power photomicrography, wear testing, stainless steels and high tensile strength low carbon steels were discussed at the winter sectional meeting of the American Society for Steel Treating at the Hotel Sinton, Cincinnati, Jan. 15-16. All technical sessions were held on the first day with an informal dinner in the evening. Friday's program was given over entirely to inspection trips, principally through machine tool manufacturing plants, where tools were operated to demonstrate their cutting ability.

About 125 members and guests attended the meeting. Considerable interest was shown, both in the technical sessions and plant inspections, although, with one or two exceptions, the papers read were not of such a character as to provoke any great amount of discussion. Among the plants visited on Friday were the Cincinnati Bickford Tool Co., Cincinnati Milling Machine Co., Cincinnati Planer Co., Ahrens-Fox Fire Engine Co., American Rolling Mill Co., Andrews Steel Co., and Rookwood Pottery.

Julian A. Pollak, vice president Pollak Steel Co., was toastmaster at the dinner Thursday evening. Principal speakers were Fred A. Geier, president Cincinnati Milling Machine Co., Cincinnati; W. S. Bidle, president W. S. Bidle Co., Cleveland and national president of the society; R. H. Smith, vice president Lamson & Sessions Co., Kent, O.; and E. F. duBrul, manager of National Machine Tool Builders' association, Cincinnati. The board of directors, meeting the day preceding the technical sessions, decided to hold the spring sectional meeting of the society at Schenectady, N. Y., during the latter part of May. The usual procedure will be reversed and the plant inspections will be arranged for the first day. On the following day the guests will go to Lake George where the technical program will be given. All papers for this meeting will be preprinted.

Oil Quenched Gears Growing in Favor

WELCOME of the visitors to Cincinnati was extended by Dr J. Culver Hartzell, president of the Ohio Lesgas Corp., Cincinnati, and chairman of the local chapter executive committee, at the initial session held on Thursday morning. He then introduced as chairman of the session Arthur W. F. Greene, chief metallurgist, John Illingworth Steel Co., Philadelphia.

The first paper to be presented was "Gearing as a Medium of Industrial Power Transmission," by O. N. Stone, assistant chief engineer, Van Dorn & Dutton Co., Cleveland. After reviewing briefly the commercial applications of gears and their purposes, the speaker mentioned important considerations in gear design and materials used for manufacture. For uses of low stress, cast gears often are satisfactory, cast iron sometimes being more satisfactory than steel. For gears subject to great wear without severe stress, case hardened straight carbon steel may be used. Where the stresses are severe suitable alloy steels are used. In both cases, the gears are made from forged blanks. Mr. Stone said that oil hardening of gears is becoming more popular and in some cases a double quench is found to give best results. The first quench refines the core and the second, at a lower temperature, refines the case.

In discussing this paper, T. H. Nelson, metallurgist, United Alloy Steel Corp., Canton, O., stated that the file test for hardness is condemning superior types of steel. He urged that the society take steps to discourage the use of the file test.

Since the introduction of high power photomicrography a short time ago, much discussion has been aroused as to the relative merits of the method. As with most new developments, metallurgists have been slow to accept it. In a paper, "Sample Preparation for High Power Photomicrography," presented at the Thursday afternoon session, R. G. Guthrie, metallurgist industrial gas department, People's Gas Light & Coke Co., Chicago, stated that no mystery surrounds the method but that is was simply a means for studying areas at increased magnifications. Those who have used the method have experienced some difficulty in preparing specimens and eliminating the amorphous film which obscures the etched surface consequently the author's paper dealt almost entirely with the best method for sample preparation as determined from extensive work on the subject.

For high power magnification, revamped equipped is not desirable but it is best to use some standard equipment designed for that purpose. If revamped equipment is to be used, advice should be obtained from the manufacturer. Micrographs are of two kinds; those showing ordinary contrast or detail and those showing maximum detail. High power work falls in the latter class. Two requisites of sample preparation are common sense and absolute cleanliness of all operations. Much work was done by the author to eliminate the amorphous film obscuring the specimen and he finally resorted to a paraffine coated wheel and soap solution for one of the last polishing operations. Final polish is obtained on a flannel wheel. The specimen is then etched and re-etched until a satisfactory surface is received.

In concluding his paper, Mr. Guthrie showed on the screen a number of photographs of both low and high power magnification, ranging from 2300 to 15,500 diameters. Both flat and conical illumination was used, the latter producing the effect of depressed areas in the specimen. Reversal of the slides in the lantern reversed the appearance of these areas.

In discussing this paper, Prof. H. M. Boylston, head of the department of metallurgy, Case School of Applied Science, Cleveland, and chairman of the session, stated that the use of the paraffine wheel and soap solution were not new, having been known for a number of years. He stated, however, that probably their application was new.

"Wear and Wear Testing," was the title of a paper prepared by G. W. Quick and S. J. Rosenberg, bureau of standards, Washington, and read by Mr.

Quick. Since the investigation being conducted by the bureau is not yet completed, the paper resolved itself into a progress report of the work accomplished to date. Wear tests are of two kinds, namely, the Amsler or universal wear test and the abrasive wear test. In the first the specimens rotate in opposite directions in the Amsler machine. The surfaces travel in the same direction although one moves at a faster rate than the other. Various loads of 20, 40 and 60 kilograms are applied and no lubrication is used on the specimens. Wear during a test run is determined by the loss in weight of the specimens.

In the abrasive test the specimens are mounted in a cylinder filled with balls or other abrasive material and the cylinder is rotated. Wear in this case also is determined by the loss in weight of the specimens. During the preliminary tests an effort was made to correlate the Amsler and abrasive tests and to determine what metal should be taken as a standard. Results thus far have shown hardened carbon steel to resist wear better than manganese steel, stellite or cast iron, consequently it has been taken as the basis for comparison.

Stainless Steel To Increase in Use

THE history of so-called rustless or stainless steels was traced by T. Holland Nelson, metallurgist, United Alloy Steel Corp., Canton, O., in a paper, "Corrosion Resisting Steels of the Iron-Carbon-Chromium and the Iron-Carbon-Chromium-Silicon Series." Years ago Harry Brearley was attempting to develop a steel which for gun manufacture would resist corrosion and errosion. Due to the fact that the explosive temperatures of shells were sufficient virtually to melt the surfaces of gun linings, it was essential that the melting point of any new material be high. Pure iron had the highest known melting point and it was known that chromium was the only element which could be added that would not materially decrease that melting point. Quite accidentally it was found that the new alloy was noncorrosive when certain tests were applied. This led to the patenting of stainless steel.

Iron and steel is stainless only insofar as it will not dissolve in various solutions in which it may be placed. Theorectically pure iron is soluable in water. Pure iron with upward of 9 per cent chromium, ordinarily 12 to 14 per cent, is insoluable in water. It has a negligible galvanic action and is classified as rustless. The carbides are negligible and the material is rustless, heat treated or not.

Subject to Galvanic Action

A 0.25 per cent carbon steel with over 9 per cent chromium, ordinarily 12 to 14 per cent, is insoluable but is subject to galvanic action. Consequently it is subject to selective corrosion. Heat treated the carbides are in solution and the metal is rustless.

Iron with 16 per cent chromium, ordinarily 16.5 to 18.5 per cent, and silicon from 0.5 per cent upward is insoluable. The carbides are finely dispersed due to the silicon and the metal is rustless. It is rustless heat treated or not.

In concluding his paper, the speaker stated that no steel was known which was rustless or stainless under all conditions and urged that conclusive tests be carried out before a so-called noncorrosive steel is placed in use. Mr. Nelson pointed out that laboratory tests not always will agree with practical tests. For instance, steel which has failed in a 4 per cent sulphuric acid has stood up in a mine water containing the same amount of the acid. The speaker predicted the application of stainless steel to many new uses in the future.

At the informal dinner in the evening, Toastmaster Julian A. Pollak introduced as the first speaker Fred A. Geier, president of the Cincinnati Milling Machine Co., who welcomed the visitors to Cincinnati. He spoke of the city's prominence in industry, particularly that of manfacturing machine tools. After responding to this welcome, W. S. Bidle, president of the society, reviewed the development of high speed steel and the resulting development of machine tools to provide increased capacity. Today the machine tool is only as good as its cutting tool. Industry was slow in accepting high speed steel but its progress has been rapid.

One of the most interesting features of the dinner meeting was a paper "High Tensile Strengths with Low Carbon Steels," by R. H. Smith, vice president, Lamson & Sessions Co., Kent, O. This paper reported tests conducted upon low carbon steel of 0.15 per cent carbon or less to determine the effect of extremely rapid quenching from temperatures of 860 to 2400 degrees Fahr. To obtain the rapidity of quenching it was necessary to construct special jigs which would supply a large quantity of water quickly. It was found that tensile strengths increased continuously from approximately 48,000 to about 150,000 pounds per square inch as the temperatures were increased through the range.

Increases in strength varied directly with temperature except at two, namely, 1300 and 1640 degrees Fahr., at which points the tensile strength rose rapidly. Reduction of area fell sharply until about 1325 degrees Fahr. was reached when the curve turned upward until 1600 degrees was reached and the reduction of area again turned down. In other words, the reduction of area decreased suddenly at the lower critical temperature.

Commercially, it was found that tensile strengths higher than 90,000 pounds per square inch could be obtained without objectionable brittleness. By proper coordination of heating and drawing temperatures, a wide choice in the relation between the tensile strength and reduction of area is made possible. Rivets or bolts can be made with tensile strengths of 100,000 pounds per square inch and reductions of area of over 50 per cent. At the same time a strength of 70,000 pounds with a reduction of 70 per cent is practicable. The work conducted by Mr. Smith gives promise of wide application, particularly in the manufacture of rivets where safety in driving them must be considered.

Must Design New Tools

E. F. duBrul, manager of the National Machine Tool Builders' association, Cincinnati, in a few brief remarks presented some views on the machine tool industry. He said that the greatest curse of the industry is that it is selling machine tools when it should be selling production. If industrial plants can be sold production, the machine tools will sell themselves. He said also that tool builders were not doing enough research in their line and suggested the use of state universities for this purpose. In conclusion he suggested that metallurgists develop high speed steel to such a point that tool builders would be forced to design new machines.

On Friday evening those attending the sectional meeting were dinner guests of the Andrews Steel Co., following which the party was conducted through the company's mills at Newport, Ky.

To End Receivership

Semi-official advices are to the effect that the receivership of the Joseph E. Thropp Co. will be terminated within the next few months, but no date is yet in evidence. The properties of the company include blast furnaces at Everett and Saxton, Pa., mineral lands, etc.

A Look Back—and Ahead

Same Situation in Bookings but Outlook Vastly Different—Best Bets of November Being Bettered Now—What Ten Years Brought

BY E. C. BARRINGER

CHICAGO, Jan. 20.—Turning back the pages of time—A year ago the order books for finished steel were identical with those of today; first quarter capacity was substantially sold out. Production was on the increase. Prices appeared to be firm, although there were those who maintained that steel had not experienced the post-war liquidation pig iron had.

But then, the presidential election was in the offing. The LaFollette bloc was astride the neck of congress and baiting the railroads. Europe was restless. Now, Coolidge is assured for four years more. LaFollette's strength has been broken and the railroads appear safe from congressional persecution for at least two years. Steel prices have had a good shakeout.

A year in prices has brought northern iron completely around the circle. Both No. 2 foundry and malleable opened 1924 at $23.50, dropped to a low of $19.50 in July, then recovered to $24 by the end of the year.

Charcoal iron did not move a hair in 1924, staying pegged at $29.04, Chicago.

Soft steel bars slipped from 2.50c, Chicago, to a low of 2.00c but regained 2.10c by the end of the year. Plates and shapes fluctuated from 2.60c to 2.00c with a rebound to 2.20c when the year ended.

Bar iron fell like a plummet throughout the year, from 2.40c in January to 2.00c in December. Rail steel wound up at 2.00c from a 2.30c start.

* * *

Sixty days ago an executive of one of the four biggest iron and steel scrap firms in the Chicago district bet $25 that heavy melting steel scrap would touch $22 by April 1. Now he has $25 to place on $25 steel by the same date.

A pig iron broker believes spot demand for northern pig iron this month will be so heavy that No. 2 foundry and malleable will cross $27 by the end of February.

* * *

A Pittsburgh maker of wire and nails and a Chicago wholesaler are waging a private war over wire nails. Both are quoting 3.15c, Chicago, which is only $3 a ton over the mill price. Several large jobbers are standing pat on 3.30c.

* * *

The annual Christmas party of the Freyn Engineering Co. was noteworthy for more than the distribution of profit-sharing awards to employes and the presentation of a scarf pin to H. A. Brassert, who continues in a consulting capacity for the Freyn company but now heads H. A. Brassert & Co.

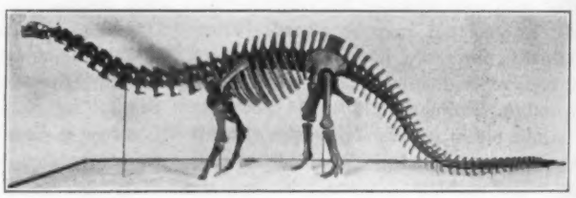
It marked the tenth anniversary of this engineering organization. As Mr. Freyn pointed out the staff has grown from two members in 1914 to 44 at present time, while 72 contracts were placed with it last year against one in 1914.

"In our 10 years we have prepared 736 estimates and obtained 539 individual contracts," Mr. Freyn stated. "To our customers these contracts approximate $75,000,000. We have supervised the construction of 14 blast furnaces and remodeled a like number.

Use Speed Reducers for Unusual Purpose

Motors, Reducing Gear Sets, Flexible Shafting, etc. Contribute To Restoration of Prehistoric Animal

MODERN man always has exhibited a keen interest in the history and habits of prehistoric animals. Therefore it is not surprising that Messmore & Damon, Inc., New York, conceived the idea of fabricating for exhibition purposes an exact reproduction of the amphibious dinosaur brontosaurus unearthed near Medicine Bow, Wyo., some time ago. The skeleton taken from Wyoming was assembled and is on display at the American Museum of Natural History, New York. Through the courtesy of the museum officials, the skeleton is illustrated above.



In restoring the figure of the animal, which is shown above, provision was made for moving the eyes, head, neck, hips, stomach, sides and tail in a realistic manner so that the beast appears to be breathing and feeding. This is accomplished by modern mechanical apparatus, including 10 motors, an elaborate switchboard, shafts of steel tubing, flexible shafting and 10 speed reducers.

The body is made of rattan assembled with springs so it is flexible. Inside the body is a table that carries the 10 motors and speed reducers that operate the different parts. The legs of the table pass through the legs of the dinosaur. The head and neck are controlled by a heavy steel tubing working through a series of speed reducers, one section of which is worked by flexible shafts. All of these motions are controlled from one switchboard and the motions may be reversed if desired. The length of the restored animal is 48 feet 9 inches, its height 9 feet 3 inches and its weight 4000 pounds. The details of this interesting and unusual application of mechanical transmission methods were furnished by Francis A. Emmons, Foote Bros. Gear & Machine Co., Chicago.

Here and There in Industry

Live Information Which Records the Expansion of Various Lines of Productive Enterprise

THE Cunningham Furnace & Machinery Co., Ltd., London, Ont., has been incorporated and will carry on the business of the Cunningham Industrial Furnace Co., in the manufacture of electric furnaces, etc. The new company proposes to build special machinery used in connection with electric ovens, and in order to maintain continuous operations has decided to make and sell other lines of equipment. Expansion includes purchase of the Yeates Machinery Co. "We intend to carry on business not only as manufacturers of our present lines" said R. H. Cunningham, "but as distributors of machine tools and supplies used in this part of the Province." The present building is to be altered and enlarged. About $50,000 will be spent now on machine tools, shafting and other supplies. The mechanical department will include engineering, patternmaking, sheet metal, electrical and facilities for designing and building special machinery used in connection with electric furnaces. The company plans opening a branch in Port Huron soon for handling the United States market. Officers of the company are: President, R. H. Cunningham; secretary and treasurer, J. W. Cunningham; directors, O. I. Cunningham, E. G. Yeates, and E. C. Mitchell.

* * *

POWER plant equipment for the increased capacity of the Crescent Portland Cement Co., Crescentvale, Pa., will be supplied by the Westinghouse Electric & Mfg. Co. Equipment includes two 3000-kilowatt, 2200 volt, 3 phase, 60 cycle, turbine generator units.

* * *

JOLIET WROUGHT WASHER CO., Joliet, Ill., which lost its plant by fire, is equipping three buildings, each 50 x 250 feet, formerly owned by the Commonwealth Motor Co., at Rockdale, just outside Joliet, and expects to be in practically full operation again by March 1. F. J. Magee is president. Some new equipment is being bought.

* * *

PLANS for rebuilding the burned plant of A. B. Greer & Son, London, Ont., manufacturers of cars, trailer, buggies, etc., are being formulated. What type of building or amount of equipment to be purchased have not been selected according to J. A. Greer. Temporary arrangements have been made for accommodating production until a new plant is erected.

* * *

COMPLETION of a new machine shop is expected shortly by the American Can Co., at Seventeenth and Mariposa streets, San Francisco. J. A. Gray will take charge as superintendent of the plant which will be devoted exclusively to machine shop work for the American Can Co. This shop is considered one of the finest on the Pacific Coast, plant and equipment involving well over $500,000 expenditure.

* * *

REMINGTON TYPEWRITER CO. has absorbed the Noiseless Typewriter Co. of Middletown, Conn., and in so doing retires five officers of the latter company. These are president, C. W. Colby; vice presidents, H. S. Duel and Arthur Hebard; secretary, Joseph Merriam, and treasurer, E. H. Russell. The Middletown plant will continue to be operated but supervision will be by officers of the Remington company of which B. F. Winchell is president.

* * *

CHANGES and improvements in the plant of the Marion Electric Corp., Marion, Ind., are planned for the recently purchased building at Eleventh and Adams street, that city. The company sold its plant at Euclid and Western avenues. The Marion company manufactures household heating appliances such as curling irons, hot plates, grills, etc. All of its punch press, plating, polishing and other machinery is electrically operated.

* * *

ANNOUNCEMENT is made that J. O. Heinze, formerly with the Heinze Electrical Co., Lowell, Mass., and at one time an engineer with the General Motors Co., Detroit, will build a plant to manufacture tractors at Bessemer, Ala., 13 miles south of Birmingham. A tract of 200 acres has been purchased and the construction of the plant will be started at once, it is stated. The tractor will have three wheels, and the engine will be of the four-cylinder type.

* * *

FURNISHING original and replacement units consisting of gas engine power plant and transmission units for steam railway coaches will be the work of the newly organized Wisconsin Gas Railway Equipment Co., which has been incorporated with $150,000 capital stock by O. E. Woodcock, R. G. Adair, Earl Woodcock and S. G. Cromwell of Oshkosh, Wis. While the company does not intend at the start to manufacture all of the units, it will establish a machine shop, assembling and installing plant at once.

* * *

CAPACITY of the Northwest Engineering Works, Green Bay, Wis., will be increased materially by proposed enlargement to be started Jan. 1. Contracts have been let to the Ludolf M. Hansen Construction Co., Green Bay, for erecting a brick and steel machine shop addition, 30 x 185 feet. The owner will fabricate the structural steel. The works are located at South Pearl and Howard streets, and the main product is a yard crane mounted on a crawler type tractor base. The sales headquarters are at 838 Steger building, Chicago.

* * *

MARCH 1 is set as the date on which operations are to be started in the new plant of the General Die-Casting Co., 501 American Casualty building, Reading, Pa. A 3-acre site on the Pennsylvania railroad in Reading recently was purchased and a modern plant having 200,000 square feet of floor space started. This plant will be under direction of F. C. Morrison, vice president and general manger. Mr. Morrison had been manager of the die casting division of the Light Mfg. & Foundry Co. for the past 12 years. The new plant will be equipped with the most modern machinery.

* * *

CONTRACTS have been awarded to the Austin Co., Cleveland, engineer and builder, by the Reliance Electric & Mfg. Co., that city, for a new unit at its plant, the extension including 1-story and 2-story sections, mill type construction. Runways for three 3-ton traveling cranes will be provided in the 1-story plant, this unit being used to increase machine shop and assembling capacity. The 2-story section will be devoted to armature and coil winding departments. Construction is to be completed by March 15. Clarence L. Collens is president of the Reliance company, H. Morley Hitchcock, vice president in charge of sales, A. M. MacCutcheon, vice president in charge of engineering, Lawrence Hitchcock, treasurer and C. V. Putnam, secretary. The company manufactures electric motors.

Men of Industry

Personal News of a Business Character Pertaining to the Iron and Steel and Related Fields of Enterprise

GEORGE E. DOKE, engineer of materials and equipment tests of the New York Central railroad at New York has resigned from that capacity, effective Feb. 1, to fulfill the duties of president of the Association of Manufacturers of Chilled Car Wheels, to which office he was elected Jan. 14. He will have his headquarters in Chicago and succeeds George W. Lyndon who died Oct. 7. Mr. Doke was born in Tecumseh, Mich., Aug. 19, 1877 and was educated in elementary and high schools at Elkhart, Ind. From 1897 to 1900 he served on the Indiana, Illinois & Iowa now a part of the New York Central system. Mr. Doke next served with the Lake Shore & Michigan Southern in various capacities, becoming chief material inspector in 1906. In 1912 he was promoted to assistant engineer of tests in charge of the locomotive and car departments service tests and in 1916, following consolidation of the Lake Shore with the New York Central, was made assistant engineer of tests in charge of material inspection for the car and locomotive departments. He later held various other positions of similar nature with the New York Central and since 1922 has served as engineer of materials and equipment tests. Mr. Doke is a member of the American Society for Testing Materials, the mechanical division of the American Railway association, the Cleveland Engineering Society and the American Society of Mechanical Engineers.

* * *

A. C. Dinkey, president of the Midvale Co., Philadelphia at present is on a vacation in the South.

* * *

A. K. Merrill, chief accountant of the United States Steel Corp., has been elected a director of the Boston Montana Mining Corp.

* * *

George W. Walters has been appointed district manager of the northwestern territory for the Traylor Engineering & Mfg. Co., Allentown, Pa. He will be located at 815 Alaska building, Seattle.

* * *

John B. Cornell has resigned as treasurer of the Niles-Bement-Pond Co., and Pratt & Whitney Co., 111 Broadway, New York. He has been affiliated with these companies for approximately 25 years. It is understood action will be taken in filling this vacancy at the annual meeting to be held Feb. 4. Mr. Cornell has acquired an interest in Business Extension Service Inc., Northern Pacific building, New York.

* * *

Frank N. Satter has resigned as of Jan. 1 as assistant sales manager of the

GEORGE E. DOKE

Morse Rogers Steel Co., Cleveland, to take charge of the alloy steel sales for the Bethlehem Steel Co. in the Cleveland district.

* * *

John Heller, for many years one of the directors of the International Oxygen Co., Newark, N. J., manufacturer of acetylene equipment and sales agent for the International Acetylene Co., has been appointed sales manager.

* * *

Herman L. Barnes has been appointed vice president of B. E. Schonthal & Co., Inc., 224 South Michigan avenue, Chicago, dealer in steel products and equipment, semifinished mill products, steel castings, mine and industrial supplies, etc.

* * *

Leon Ehrman has been made blast furnace superintendent of the Belfont Steel & Wire Co., Ironton, O., in charge of the Belfont and Sarah furnaces. He formerly was assistant superintendent of the blast furnaces of the Marting Iron & Steel Co., Ironton. Before going to Ironton he was with the Cambria Steel Co. at Johnstown, Pa., and the Tennessee Coal Iron & Railroad Co. at Ensley, Ala.

* * *

Oscar W. Loew will assume charge of the advertising and sales promotion work of the Truscon Steel Co., Youngstown, O., effective Feb. 1. Mr. Loew has been connected in advertising and merchandising capacities for many years.

* * *

Robert S. Lyons, who has been with the National Tube Co. for 15 years and recently had been assistant to the sales manager, has resigned to take charge of the order department of Clayton Mark & Co., manufacturers of pipe and well supplies, Chicago.

* * *

Samuel Mather, of Pickands, Mather & Co., Cleveland, accompanied by H. Coulby, chairman of the Pittsburgh Steamship Co., will sail from New York, Jan. 22 on the FRANCONIA. They will be gone about four months on a tour around the world.

* * *

C. Moody, formerly manager of the Auto Lite Gas Co., Ltd., Winnipeg, Man., has joined the apparatus plant of the Purox Co., Los Angeles, manufacturer of welding and cutting equipment. Mr. Moody will be assistant manager of the Purox Co.

* * *

J. B. Thorpe has resigned as general superintendent of the alloy division of the United Alloy Steel Corp., Canton, O., effective Jan. 15. Mr. Thorpe came to Canton in 1918 from Gary, Ind., where he had been connected with the United States Steel Corp. He was graduated from the University of North Carolina in 1903 and has been engaged actively in the steel industry since that time.

* * *

J. J. Brooks Jr., affiliated with the Harbison-Walker Refractories Co., Pittsburgh, for about 22 years, formerly as sales manager and lately as assistant to the president, has resigned from active participation in the operation of that company, but retains his place on the board of directors and will continue to co-operate in the affairs of the Refractories Manufacturers' association.

Daniel G. Reid

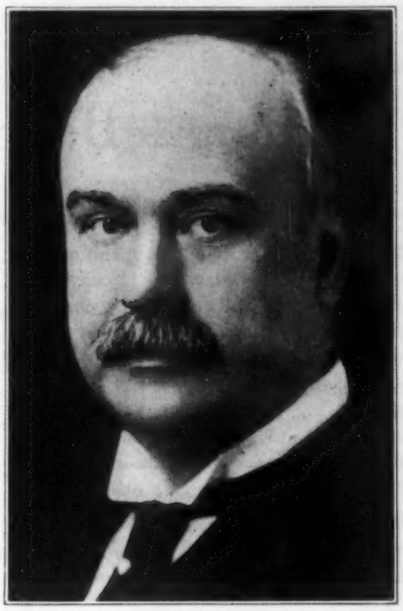
1858—1925

DANIEL GRAY REID, romantic figure of the tin plate industry and one of the outstanding personalities who guided the modern steel business in this country through its formative period, died at his home in New York Jan. 17. Death was due to pneumonia, but Mr. Reid had been in ill health since 1918. Since then, he has spent much of his time taking trips for the benefit of his health. On these journeys he was accompanied by a retinue, including two or three physicians, four nurses, a private secretary and numerous servants. At the age of 11, in Richmond, Ind., where he was born Aug. 1, 1858, Mr. Reid started as a messenger in the Second National bank. He was thrifty and industrious and worked his way up until he became vice president of the bank. It was in 1892, by the purchase of a small tin plate mill at Ellwood, Ind., that he came into the steel business. Associated with him was William B. Leeds, then a division superintendent of the Pennsylvania railroad. They brought to Ellwood, William Banfield, a Cornishman whose ancestors for generations had made tin plate in Cornwall and Wales. Banfield built a plant at Ellwood and manned it with Welshmen who knew how to make tin plate. The plant at Ellwood became the first important successful producer of tin plate in America. In 1895, Mr. Reid resigned his banking connection to give all his time to tin plate. By 1897, the original four mills at Ellwood had grown to 31 and the offices were moved to Chicago, where Mr. Reid made his headquarters. Later in life, Mr. Reid said that the prosperity of the tin plate industry in this country was made possible by the McKinley tariff.

In Chicago, Mr. Reid met Judge William H. Moore and his brother, James Hobart Moore. With them, he took over approximately 95 per cent of the American tin plate industry of that time and merged them in 1898 under the name of the American Tin Plate Co. To guarantee the company's steel supply, the National Steel Co. immediately was organized. Mr. Reid, with the Moore brothers, and Mr. Leeds, also organized the American Sheet Steel Co., and the American Steel Hoop Co.

Mr. Reid remained as president of the American Tin Plate Co. until it was sold in 1901, to the organizers of the United States Steel Corp. For that corporation, he and Leeds and the Moores, organized the present American Sheet & Tin Plate Co., and the American Steel & Wire Co. Mr. Reid became a director and a member of the executive committee of the Steel corporation.

In 1899, with the Moore brothers, and Mr. Leeds, he came to New York, where they at once became spectacular figures in Wall street. Among other activities



DANIEL GRAY REID

they obtained control of the American Can Co., of which Mr. Reid became chairman. Mr. Reid and his associates also were active for a time in railroad stocks. Among the roads which he and his group controlled was the Chicago & Rock Island.

During his spectacular career, Mr. Reid committed various extravagances and furnished the newspapers with a great deal of copy. He always maintained a reputation, however, of being one of the big business men whose word was absolutely dependable.

Mr. Reid was a director of the Bankers Trust Co., the Chase Securities Corp., the Continental Insurance Co., the Liberty Industrial Corp., the Metal & Thermit Corp., the National Bank of Kentucky, and the Lehigh Valley railroad and a trustee of the American Surety Co. He also was at times prominently interested in the National Biscuit Co., the Tobacco Products Corp., and other companies. He did not resign as chairman of the American Can Co., until 1923, but continued as a director of this company.

Always a loyal son of his home town, he established numerous benefactions in Richmond, Ind. Among his other gifts was the provision of funds to Columbia hospital, New York, for invalid returning soldiers. Henry J. Topping, son of John A. Topping, chairman of the Republic Iron & Steel Co. is a son-in-law of Mr. Reid.

Obituaries

RICHARD MOON, aged 60, superintendent of the mechanical department of the Homestead plant of the Carnegie Steel Co., Pittsburgh, died suddenly Jan. 13 at his home in Homestead from heart disease. He was born in Scotland but located in Pittsburgh 36 years ago.

* * *

Albert Waycott, founder and former president of the Damascus Brake Beam Co., Cleveland, died Jan. 15 in San Francisco of heart disease at the age of 55 years. He came to Cleveland from Canada in 1904 and started the Brake Beam company. He retired seven years ago after going to New York.

* * *

Glenn G. Howe, for many years senior vice president of the Link-Belt Co., Chicago, manufacturer of conveying equipment and operator of foundries, died Dec. 25 at his home in Muskegon, Mich., following a long illness. Mr. Howe's first connection with the Link-Belt organizations was as a 16 year old office boy in 1877. The next was with the mechanical department of the company and then he became superintendent of the Ewart Mfg. Co. When the three related interests, the Ewart Mfg. Co., Link-Belt Machinery Co. and the Link-Belt Engineering Co. were merged into the Link-Belt Co. in 1906, Mr. Howe became vice president in charge of operations at Indianapolis. He continued until failing health caused his retirement as senior vice president. A few years later he organized the Howe Chain Co. at Muskegon, Mich., serving as president until the end of 1923 when a recurrence of his illness caused Mr. Howe to retire again. The Howe company was sold to the Link-Belt Co. in January 1924.

Machinery Demand Still Lags

Inquiries Continue To Appear in Improving Volume but Hesitancy in Closing Prevails—Large Industrial and Railroad Lists Are Expected Shortly—Export Orders Increase—Used Tools Continue Spotty—Crane Builders Booking Less

DESPITE gradually improving inquiries, the machine tool market continues to lack gain in sales. Many interests claim January sales will not equal those of December, if the present buying rate is not increased. Large lists from railroads and industrials are expected shortly, but buying from those quarters now is light. Southern railway has closed on several tools as has the General Electric Co. Illinois Central shops at Paducah, Ky., are expected to bring demand. A. O. Smith Co., Milwaukee, has been buying a few tools.

Export sales are featured by 12 for Germany, by the Cincinnati Planer Co. Other Cincinnati companies also booked several tools for export. Price increases are rumored, but lack definite action. Advances in the present market are not encouraged by many interests.

Used equipment sales are slow, but are moving about the same as in December.

Crane builders are booking few and scattered orders. Inquiry is fair, but closing is slow. The Carnegie Steel Co. is the largest prospective buyer, with 50 to 60 needed for its Homestead works, and various other installations for Mingo Junction, O., and its McDonald Works, Youngstown, O.

January Sales Falling Below December's

NEW YORK, Jan. 20.—Although inquiry continues in the better volume noted a week ago, orders for machine tools still are lagging. Unless trading picks up considerably before Feb. 1, business in January likely will fall under that of December.

Among recent orders are a 36-inch planer for the Boston & Albany railroad; a 42-inch rotary planer for the Llewellyn Iron Works, Los Angeles; and a 2000-pound steam hammer for the Hallidie Machinery Co., Seattle, Wash. Eastern builders also figured in the distribution of a substantial list for the Peoria & Pekin railroad. One eastern interest obtained a contract for at least $50,000 of this equipment.

The Southern railway closed on a 53-inch boring and turning mill and a 36-inch planer to one seller, and a 5-foot radial drill to another. No action has yet been taken by the Central Railroad of New Jersey, the Lehigh Valley or the New York, New Haven & Hartford, all of which have had lists pending for sometime. The Delaware, Lackawanna & Western is understood to be contemplating some equipment for shops to be erected at Buffalo.

The General Electric Co., Schenectady, N. Y., has closed on a 23-inch engine lathe, and has issued inquiries for an internal grinder and a 36-inch engine lathe. It also has several other inquiries pending.

Betterment Is Slow

CLEVELAND, Jan. 20.—Betterment is slow in evidencing itself in the local machine tool market. Occasional tools are being placed by railroads but few lists are pending. January sales probably will fall below those of December. No orders for export were booked by local builders during the past week. Some rumors of price increases are active, but these are not accepted with much faith by local interests.

The Shartle Machine Co., 359 Dublin avenue, Columbus, O., is in the market for three air compressors, a 1350, a 1500 and 2000 cubic foot, all to have 3-phase, 60 cycle, 400 or 2300-volt motors.

Large Buyers Still Inactive

PITTSBURGH, Jan. 20.—Slowness continues to characterize the general machine tool market although inquiries for one to three tools at a time continue spasmodically. National Tube Co., McKeesport, Pa., has just contracted for a 10-ton ore bridge from the Meade-Morrison Mfg. Co. A number of inquiries and orders for hammers, transfer tables, etc., are being negotiated by the Morgan Engineering Co. The Ohio Seamless Tube Co., Shelby, O., has ordered additional cold drawing tube

Crane Awards and Inquiries of the Week

Orders Placed

Four overhead cranes for the Parrish Mfg. Co., Reading, Pa., of which two 5-ton cranes, of 71-foot span, went to the Shepard Electric Crane & Mfg. Co., and two 10-ton cranes, one of 71-foot span and the other of 69-foot span, to another eastern builder.

Single Installations

30-ton locomotive crane for the Mill Power & Supply Co., for installation in South Carolina, to the American Hoist & Derrick Co.

10-ton ore bridge, span approximately 142 feet, for the National Tube Co., McKeesport, Pa., to the Meade-Morrison Mfg. Co.

10-ton crawler crane for Anaconda Copper Mining Co., 25 Broadway, New York, to the Harnischfeger Corp.

5-ton, 4-motor crane for the Pittsfield, Mass., plant of the General Electric Co., placed, the order reported as going to the Whiting Corp.

¾-yard steam shovel for a Washington, contractor, to the McMyler-Interstate Co.

Several hundred feet of tramrail equipment for Thomas Maddocks Potteries, Inc., Trenton, N. J., to the tramrail division of the Cleveland Crane & Engineering Co.

Orders Pending

Fifty to 60 cranes for the Carnegie Steel Co., Pittsburgh plants; bids being considered.

Four cranes for the McDonald works, Youngstown, of the Carnegie Steel Co.; bids about to be asked.

Three 3-ton traveling cranes for Reliance Electric & Mfg. Co., Cleveland; pending.

Two electric overhead cranes, one of 80 tons capacity and the other of five tons, for the Royal State department of Siam, bids asked by C. P. Sandberg, 100 Broadway, New York.

20-ton and 15-ton handpower cranes, 40-foot span, for the Harrison street station of the Public Service Corp., Newark, N. J.; bids asked; it is believed that possibly these cranes are alternates.

Crane for the Diamond Alkali Co., Painesville, O.; bids in.

Crane for the Vulcan Mould & Foundry Co., Latrobe, Pa.; action deferred temporarily.

Cranes for new open-hearth plant, Mingo Junction, O., of the Carnegie Steel Co., including large ore bridge, car dumpers, etc.; bids being asked.

equipment from the Standard Engineering Co., Ellwood City, Pa. Several single machine tool sales are noted.

A large number of inquiries are before the used machinery sellers, demand for this class of equipment in good shape being active.

The Carnegie Steel Co. has not taken action as yet on 50 to 60 cranes for the Homestead works, nor on the transfer cars, etc., for Carrie furnaces. Included among the cranes for its new open hearth plant at Mingo Junction, O., will be a large ore bridge, car dumper, etc. Several cranes will be purchased by it for the McDonald works, Youngstown, O.

Export Orders Increased

CINCINNATI, Jan. 20.—Steady improvement continues to feature the demand for machinery in this market. While inquiries are out for some fairly good lists the bulk of buying has been for individual tools. Impetus has been given the export situation by the sale of 12 different kinds of tools to a German company by the Cincinnati Planer Co., which also disposed of a 48-inch planer to an eastern manufacturer and a 42-inch machine to a company on the Pacific Coast. The G. A. Gray Co. sold a 48-inch planer to its agent in Germany and also received an order for a switch planer from the St. Louis & San Francisco railroad for its shops at Springfield, Mo. The Cincinnati Milling Machine Co. and the Cincinnati Bickford Tool Co. also have received some export business.

Tool Buying Looms Ahead

BOSTON, Jan. 20.—Machine tool sales during the past week show only slight improvement over those of the previous week, but most dealers feel that the long expected buying movement is close at hand. The Boston & Albany railroad bought a heavy 36-inch planer and some other equipment, and a Massachusetts manufacturer bought two production tools of special design running close to $20,000 and is in the market for a third tool of similar design. Prospective buyers include the General Electric Co. at Lynn, Mass., the New London Ship & Engine Co., New London, Conn., and the Baldwin Chain Co., Worcester, Mass. Tool manufacturers report steadily improving orders.

Chicago Market Is Quieter

CHICAGO, Jan. 20.—Most machinery dealers have experienced a letdown in selling and inquiry the past week. Larger manufacturers are cautious about expanding and railroads have not yet compiled their lists. Some equipment for the new Illinois Central railroad shops at Paducah, Ky., which have just been announced by President Markham to go ahead this year, is expected to be included in the forthcoming Illinois Central inquiry. The A. O. Smith Co., Milwaukee, has been buying a few tools quietly. The Santa Fe railroad is in the market for a 42-inch side-head boring mill.

Construction and Enterprise

Concise and Timely Business Building Opportunities from the Field of Industry

Where additional information is presented, reference is made to date of issue in which previous item appeared.

BON AIR, ALA.—Danville Knitting Mills were damaged recently by storm with loss to warehouses, office, store and machine shop. R. O. Roberts is manager.

MOBILE, ALA.—Phoenix Machine Works has been incorporated for $30,000 to operate a machine shop, officers being Charles A. Baumhauer, 11 Fernway street, president and secretary and George W. Marques, vice president and treasurer.

LONG BEACH, CALIF.—Paschall Tool Co. plans expansions to increase production 50 per cent.

LOS ANGELES—Llewellyn Iron Works contemplates constructing a plant on North Main street.

LOS ANGELES—Mack Truck Co. has awarded contracts to the Union Iron Works for erecting a warehouse here.

LOS ANGELES—Allen & Courtney Oil Tool Co., Compton, plans a small plant addition.

LOS ANGELES—Tressler Ornamental Iron Works has completed recently a $50,000 plant at 3620 South San Pedro street and contemplates further expansion.

LOS ANGELES—Western Ironite Sash Weight Co., 2465 East Twenty-fifth street, has plans for a small addition to plant and will increase output.

PASADENA, CALIF.—Barnhart Aircraft, Inc., contemplates constructing a new manufacturing building.

SANTA ROSA, CALIF.—Santa Fe railroad has obtained a building permit for a $525,000 boiler shop.

SOUTHGATE, CALIF.—Service Equipment Co. plans constructing a plant costing $50,000 for manufacturing purposes.

JACKSONVILLE, FLA.—Truscon Steel Co., Youngstown, O., announces plans for constructing a warehouse at Clark and Third streets, for storing products for Florida and South Georgia distribution.

ATLANTA, GA.—Conklin Tin Plate & Metal Co. has announced plans for building a warehouse here.

ATLANTA, GA.—Southern Railway Co. has taken out permits for constructing $500,000 machine and repair shops, work on which already is under way. Considerable new equipment and machinery of a heavy type are expected to be purchased as yet.

TOOMSBORO, GA.—Kalbfleisch Corp., New York, has purchased about 3000 acres of bauxite properties in Wilkinson county. Immediate development is planned, and a plant for the manufacture of aluminum and other by-products is to be constructed.

ALTON, ILL.—The board of education, W. R. Curtis, superintendent, Sixth and Langan streets, has retained Royer, Danely & Smith, Flat Iron building, Urbana, Ill., as architects for a $400,000 high school containing vocational training units.

ALTON, ILL.—C. L. Rockwell Mfg. Co., 1628 Washington avenue, has been incorporated with 100 shares no par value stock, to manufacture and deal in materials, devices, appliances for automobiles, by Robert H. Streeper, Galloway N. Streeper, and Edgar B. MacDaniel.

CHICAGO — Barnett-Lloyd Co., 19 South Wells street, has been incorporated for $50,000 to manufacture and deal in radio sets, parts, equipment and supplies, by Richard S. Barnett, William F. Lloyd and Nicholas Kreitz.

CHICAGO—Christopher Motor Sales Co., Sheffield avenue, has retained A. L. Salaman, 10 North Clark street, as architect for a 1-story, 50x125-foot brick machine shop alteration and addition at 3308 Sheffield avenue.

CHICAGO—G. & W. Electric Specialty Co. manufacturer of high tension fuse boxes and specialties, has awarded contracts to the Austin Co., builder, for an office building 60x80 feet and a manufacturing plant 72x320 feet.

CHICAGO—Louis E. Emerman & Co., 1761 Elston avenue, has been incorporated for $150,000 to deal in automobiles and railroad cars, by Louis E. Emerman, Dave Emerman and George M. Bernstein.

CHICAGO—Anchor Mfg. Co., 2131 South Turner avenue, has been incorporated for $10,000 to manufacture and deal in iron, steel and metals, by Jerome Kacena, Joseph F. Kacena and Frank Bouzek.

CHICAGO—Universal Tool & Supply Co., 1859 Elston avenue, has been incorporated for $20,000 to manufacture and deal in hardware and metal products, by Maurice A. Orange, Harold A. Fein and Barre Blumenthal.

CHICAGO—National Kill Glare Shield Co., 77 West Washington street, has been incorporated for $150,000 to manufacture and deal in tools, parts and machines, by Charles Wurster, Thomas J. Tubbs and Charles J. Michael.

CHICAGO—Nelson Lemon Truck Co., 849 North Kedzie avenue, has been incorporated with $525,000 capital and 1000 shares no par

Warehouse Steel Prices

Quotations at Cents Per Pound at Leading Market Centers

STEEL BARS

Boston	3.265c
Buffalo	3.30c
Chicago	3.00c
Cincinnati	3.30c
Cleveland	3.10c
Detroit	3.15c
Los Angeles	3.20c
New York	3.24c
Philadelphia	3.20c
Pittsburgh	2.90c
Portland	3.00c
San Francisco	3.15c
Seattle	3.25c
St. Louis	3.15c
St. Paul	3.25c

IRON BARS

Boston	3.265c
Buffalo	3.35c
Chicago	3.00c
Cincinnati	3.30c
Detroit	3.15c
New York	3.24c
Philadelphia	3.20c
St. Louis	3.15c

REINFORCING BARS

Boston	3.25c to 3.50c
Buffalo	3.40c
Chicago	2.60c
Cincinnati	3.30c
Cleveland	3.10c
Detroit	3.15c
Los Angeles, C. L.	3.60c
Los Angeles, L. C. L.	4.00c
New York	2.80c
Philadelphia	2.80c
Pittsburgh	2.30c to 2.40c
San Francisco, C. L.	3.35c
San Francisco, L. C. L.	3.80c
Seattle	3.50c

STANDARD STRUCTURAL SHAPES

Boston	3.365c
Buffalo	3.40c
Chicago	3.10c
Cincinnati	3.40c
Cleveland	3.20c
Detroit	3.25c
Los Angeles	3.25c
New York	3.34c
Philadelphia	2.90c to 3.10c
Pittsburgh	3.00c
Portland	3.00c
San Francisco	3.15c
Seattle	3.35c
St. Louis	3.25c
St. Paul	3.35c

PLATES

Boston	3.365c
Buffalo	3.40c
Chicago	3.10c
Cincinnati	3.40c
Cleveland, ¼-inch and thicker	3.20c
Cleveland, 3/16-inch	3.425c
Detroit	3.20c
Detroit, 3/16-inch	3.45c
Los Angeles	3.25c
New York	3.34c
Philadelphia	2.90c to 3.10c
Philadelphia, 3/16-inch	3.06c to 3.26c
Pittsburgh	3.00c
Portland	3.00c
San Francisco	3.15c
Seattle	3.25c
St. Louis	3.25c
St. Paul	3.35c

NO. 10 BLUE ANNEALED SHEETS

Boston, 3/16-inch	3.915c
Buffalo	4.05c
Chicago	3.80c
Cincinnati	3.90c
Cleveland	3.45c to 3.76c
Detroit	3.95c
Los Angeles	4.20c
New York	3.89c
Philadelphia	3.85c
Portland	4.50c
San Francisco	4.20c
Seattle	4.50c
St. Louis	3.90c
St. Paul	4.05c

NO. 28 BLACK SHEETS

Boston	5.10c
Buffalo	4.75c
Chicago	4.50c
Cincinnati	4.55c
Cleveland	4.35c to 4.55c
Detroit	4.65c
Los Angeles	5.25c
New York	4.60c
Philadelphia	4.85c
Portland	5.00c
San Francisco	5.25c
Seattle	5.50c
St. Louis	4.65c
St. Paul	4.85c

NO. 28 GALVANIZED SHEETS

Boston	6.15c
Buffalo	5.85c
Chicago	5.50c
Cincinnati	5.65c
Cleveland	5.45c to 5.65c
Detroit	5.75c
Los Angeles	6.25c
New York	5.60c
Philadelphia	6.00c
Portland	6.00c
San Francisco	6.25c
Seattle	6.50c
St. Louis	5.65c
St. Paul	5.65c to 5.90c

BANDS

Boston	4.015c
Buffalo	4.05c
Chicago	3.65c
Cincinnati	3.95c
Cleveland	3.85c
Detroit	3.80c
Los Angeles	4.20c
New York	3.99c
Philadelphia	3.95c
Pittsburgh	3.60c
Portland	4.00c
San Francisco	4.00c
Seattle	4.25c
St. Paul	3.90c

HOOPS

Boston	5.50c
Buffalo	4.40c
Chicago	4.15c
Cleveland, 1-inch and wider No. 20 and heavier	3.85c
Cleveland, narrower than 1-inch	4.35c
Detroit	4.30c
New York	4.49c
Philadelphia, 1-inch and wider	3.95c
Philadelphia—narrower than ¾-inch	4.45c
Pittsburgh	3.60c
Seattle	5.00c
St. Paul	4.70c

COLD FINISHED STEEL

Boston (shapes)	4.65c
Boston (rounds)	4.15c
Buffalo (rounds)	4.20c
Buffalo (shapes)	4.70c
Chicago (shapes)	4.30c
Chicago (rounds)	3.80c
Cincinnati (rounds)	4.05c
Cincinnati (shapes)	4.55c
Cleveland (rounds)	4.00c
Cleveland (shapes)	4.50c
Detroit (rounds)	4.10c
Detroit (shapes)	4.60c
Los Angeles (rounds)	4.75c
New York (rounds)	4.15c
New York (shapes)	4.65c
Philadelphia (rounds)	4.15c
Philadelphia (shapes)	4.65c
Pittsburgh (rounds)	3.80c
Pittsburgh (sq. hex. and flats)	4.30c
Portland	4.50c
San Francisco (rounds)	5.25c
Seattle (rounds)	4.75c
St. Paul (rounds)	4.05c

FOREIGN IRON AND STEEL

Swedish hollow drill steel New York, duty paid	15.00c
Swedish iron bars round New York, duty paid	6.75c
flats and squares. New York, duty paid	7.00c

WELDED PIPE

Discounts from warehouse, New York City
Standard Steel Pipe
(Subject to Shading)

	Black	Galvanized
⅛-⅜-inch butt	—31	+ 2
½-inch butt	—41	—24
¾-inch butt	—46	—32
1/3-inch butt	—48	—34
3½-inch lap	—44	—30
7-8-inch lap	—41	—11
9-10-inch lap	—35	— 8
11-12-inch lap	—34	— 6

Wrought Iron Pipe

	Black	Galvanized
⅛-⅜-inch butt	+44	+78
½-inch butt	— 4	+19
¾-inch butt	—11	+ 9
1-1½-inch butt	—14	+ 6
2-inch lap	— 5	+14
3-6-inch lap	—11	+ 6
7-12-inch lap	— 3	+16

Iron and Manganese Ores and Minerals

Iron Ore

LAKE SUPERIOR ORES

Per Gross Ton Lower Lake Ports

Old range bessemer, 55 per cent iron	$5.65
Mesabi bessemer, 55 per cent iron	5.40
Old Range nonbessemer, 51½ per cent iron	4.90
Mesabi nonbessemer, 51½ per cent iron	4.75

EASTERN LOCAL ORES

Cents per unit delivered at Eastern Pennsylvania and New Jersey furnaces

Foundry and basic 53 to 63 per cent	9.00 to 10.00
Copper free low phosphorus 53 to 65 per cent	nominal

FOREIGN IRON ORE

Cents per unit, c.i.f. Atlantic ports

Spanish low phosphorus, 52 to 54 per cent	9.50 to 10.00
Algerian low phosphorus, 52 to 54 per cent	10.50 to 11.00
Swedish and Norwegian low phosphorus, 68 per cent.	11.00 to 11.50
Swedish foundry or basic, 66 to 68 per cent	9.00 to 10.00
Spanish foundry or basic, 50 to 54 per cent	8.00 to 9.00
Algerian foundry and basic, 50 to 54 per cent	8.00 to 9.00

Manganese Ore

Prices do not include duty at rate of 1 cent per pound of metallic manganese contained.

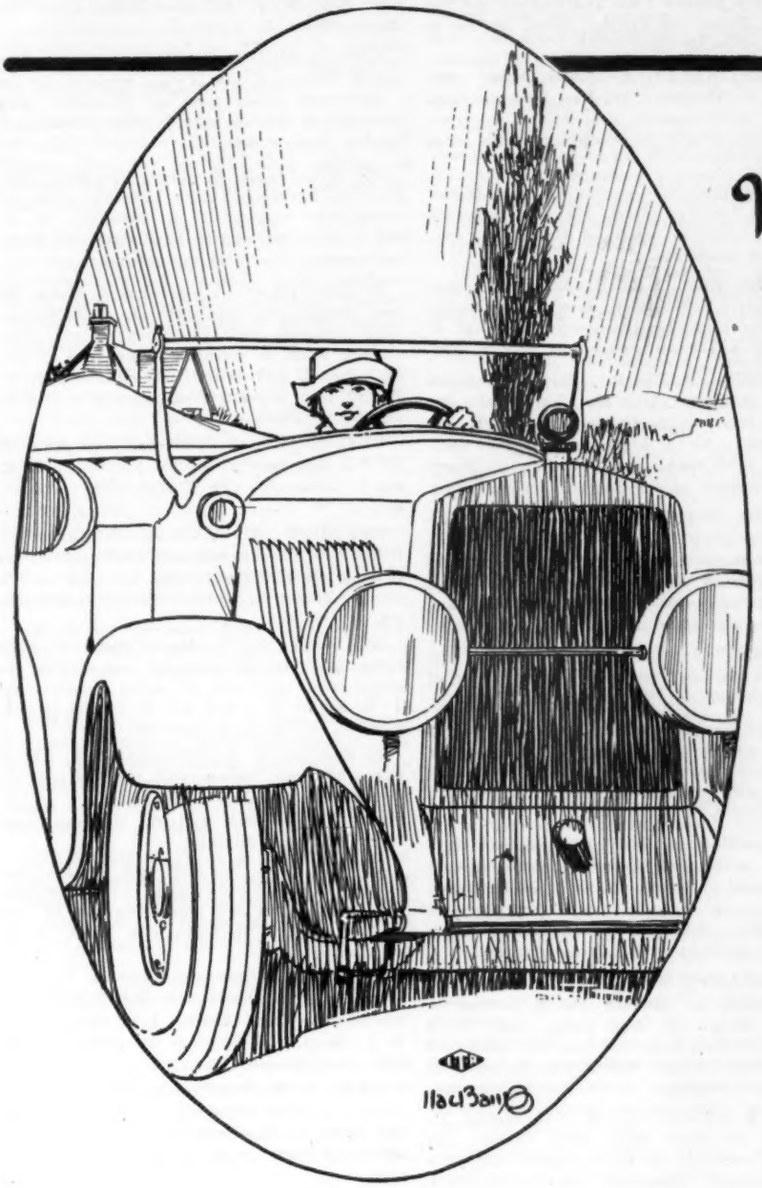
Brazilian, minimum 47 per cent....nominal
Indian, minimum 47 per cent....nominal
Caucasian, 53 to 55 per cent ....
.....Ordinary, nominal c.i.f. tidewater
.....Washed, 42 cents c.i.f. tidewater

Fluor Spar

85 and 5 per cent grade

Washed gravel, Kentucky and Illinois mines, per net ton	$18.50 to 20.00
Washed gravel, imported duty paid eastern tidewater, per net ton	17.50 to 18.50

WABIK METAL



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Vitreous Enameling

Stove Door Panels; Splasher Backs; Broiler Pans; Table Tops. Refrigerators; Signs and other flat work.

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Body Stock; Flat Fender and Hood Stock; Cowl Stock; Radiator Casing Stock; Crown Fender Stock

and

METAL FURNITURE SHEETS

PICKLED and ANNEALED ENAMELING STOCK for Kitchen Utensils

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"*Mansfield*" *Steel* is the ultimate in Sheet Bars and in Sheets. It means satisfaction to the many users. Constant study of the needs of users, and continuous application of the results of such study, in the way of improved methods in our plants, has established a reputation for unsurpassed reliability.

All "*Mansfield*" *Products* are rolled from our own "Bottom Poured" Ingots. They are very low in sulphur.

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MANSFIELD SHEET & TIN PLATE COMPANY

MANSFIELD, OHIO

DISTRICT SALES REPRESENTATIVES

L. D. Rockwell Co., 1106 National City Bldg., New York, N. Y.
Mansfield Sheet & Tin Plate Co., 1372 Wrigley Bldg., Chicago, Ill.
Mansfield Sheet & Tin Plate Co., 12-237 General Motors Bldg., Detroit, Mich.
L. D. Rockwell Co., 2002 Union Trust Bldg., Cleveland, O.
Wm. L. Hoffman, 1504 West Venango St., Philadelphia, Pa.
C. H. Beach, 1403 Merchants Bank Bldg., Indianapolis, Ind.
Maynard French Steel Co., 710 Mercantile Library Bldg., Cincinnati, O.
A. P. Grenier, 640 Endicott Bldg., St. Paul, Minn.
Wm. P. Horn Co., 237 Rialto Bldg., San Francisco, Cal.
Wm. P. Horn Co., 509 Wilcox Bldg., Los Angeles, Cal.
Wm. P. Horn Co., 1426 L. C. Smith Bldg., Seattle, Wash.

value stock, to manufacture and deal in self-propelled vehicles, by Samuel G. Stephenson, R. C. Chapman and R. H. Krammer.

CHICAGO—Superior Sheet Metal Works, Inc., 642 South Clark street, has been incorporated for $5000 to manufacture and deal in electric signs, skylights and other metal products, by John Scheider, Philip Scheider and Charles J. Sopkin.

CHICAGO—Amazon Hose & Rubber Co., 27 South Des Plaines avenue, has been formed with $25,000 capital, to manufacture and deal in rubber belting, cotton, metal, packing and valves, etc., by Harry E. Jacoby, F. C. Jacoby and J. G. Paul.

CHICAGO—Stark Metal Works, Inc., 79 West Monroe street, has been incorporated for $25,000 to manufacture and deal in metal products, automobile accessories and parts, by Ottmar G. Stark, Charles P. Schwartz and A. B. Hackworth.

CHICAGO—National Automatic Grease Cup Co., 1603 South Michigan avenue, has been incorporated for $1500 to manufacture and deal in automobiles, automatic grease cups and other automobile equipment, by Joseph Fineran, A. H. Townsend and W. C. Augenstein.

CHICAGO—Swa-Bac Co., 140 North Dearborn street, has been incorporated with $60,000 capital, to manufacture and deal in electric and mechanical and air controlled automobile and railroad signal devices, by Oscar Krakow, Frank E. Vaness and Benjamin D. Vaness.

CHICAGO—Illinois Central railroad, through F. R. Judd engineer of buildings and F. L. Thompson, chief engineer, 135 East Eleventh place, has awarded contracts to Joseph E. Nelson & Sons, 3240 South Michigan avenue, for constructing foundations of roundhouse and shop buildings at the Markham yards.

DECATUR, ILL.—The board of education through H. M. Owen, president, has awarded construction contracts to Cope & Fisher, 210 Suffern building, for a 1-story, 40x60-foot, brick and concrete power plant. Brooks, Bramhall & Dague, New National Bank building, are architects.

DECATUR, ILL.—H. Mueller Mfg. Co., Cerro Gordo, and Mueller Iron Foundry are building extensions, an addition to the foundry proper of the latter company now being under construction. An addition recently was finished for the manufacturing company to house the iron department that expanded with the purchase of the foundry from the National Castings Co.

EVANSTON, ILL.—Lowry, Bageman & Wall Co., 1013 Chicago avenue, has been incorporated for $5000 to manufacture and deal in electrical machinery and appliances, by James P. Wall, Wilbert H. Lowry and Fred J. Bageman Jr.

ROCKFORD, ILL.—The Tool & Screw Corp., 1800 Fourteenth avenue, has retained Petersoff & Johnson, Swedish-American Bank building, as architects for a 2-story, 65x185-foot top addition to its plant.

QUINCY, ILL.—Grant Motor Co., 325 Maine street, has been incorporated for $50,000 to manufacture and deal in tractors, implements and parts for motor vehicles of all kinds, by Carl C. Grant, Al Marcell and Vesta E. Grant.

EVANSVILLE, IND.—The Berryhill Malleable Iron Co., 1215 Powell street, has retained J. Berryhill as architect and engineer for a 1-story, 120 x 240-foot structural steel plant. John Berryhill is president of the company. *Noted Dec.* 11.

MICHIGAN CITY, IND.—Weil-McLain Co. has awarded contracts to the American Bridge Co. for constructing foundry extensions.

SOUTH BEND, IND.—General Sheet Metal Works, 746 South Main street, has awarded contracts to H. Weaver Co., 127 East Sample street, for a 1-story, brick plant at Main and Calvert streets.

SIOUX CITY, IOWA—City of Sioux City, W. S. Gilman, mayor, has awarded contracts to Coomer & Small, U. B. building, for 1-story, 50 x 100-foot brick and concrete building at West Eighth and Omaha streets, for use as garage and repair shop.

WATERLOO, IOWA—Illinois Central railroad, T. L. Thompson, 135 East Eleventh place, Chicago, chief engineer, contemplates constructing extensions and improvements to its shops here.

NEW ORLEANS—Sinclair Machine Works, Inc., 123 Chartres street, has been organized to make rough or machined castings of iron, brass and aluminum.

MT. DESERT, ME.—H. Millikin, in care J. F. Kelley, 39 Center street, New Haven, Conn., has plans for constructing a 1 and 2-story, 45 x 110-foot garage and service shop.

BENTON HARBOR, MICH.—Brammal Heating & Supply Co., 136 Territorial, has awarded contracts to Garlanger Bros., St. Joseph, Mich., for a 2-story, 50x120-foot warehouse of brick costing about $20,000. E. Brammal is president of the company by that name.

CROSSE POINTE, MICH.—Valley City Motor Car Co., 53 Division avenue, W. K. Philip, manager, has awarded contracts to Hurges & Wharton, 403 Home State Bank building, for a 2-story, reinforced concrete, steel and brick garage, repair shop and salesroom.

DETROIT—Republic Gear Co., Bellevue avenue, was damaged recently by fire, most of loss being confined to the plant.

DETROIT—Vincent Steel Process Co., 3131 Bellevue avenue, was damaged by fire recently with heavy loss. The plant and equipment was a total loss according to R. E. Vincent, vice president.

DETROIT—Zagelmeyer Cast Stone Co., Twelfth street and Detroit, Toledo railroad has awarded contracts to Kelly & Kinnrican, 5937 Beaubien avenue, for a 2-story plant, office building and boiler house. Frank Zagelmeyer is president of the Stone company.

KALAMAZOO, MICH.—Bryant Paper Co., Alcott street, has awarded general contract to Ray D. Boyer, 208 West Cedar street, for a 1-story, concrete and brick machine shop and salvage depot. Felix Pagenstecker is president and general manager of the Bryant company.

SOUTH HAVEN, MICH.—Cabe-Nelson Piano Co., 209 South State street, Chicago, has awarded contracts to O. F. Miller Co., 224 Pratt building, Kalamazoo, for 2-story, 61 x 240-foot addition to piano manufacturing plant. L. J. Barrow is superintendent at South Haven of the Cabe-Nelson company.

MINNEAPOLIS, MINN.—Ekman Holm & Co., 301 Phoenix building, has preliminary sketches for a brick office and foundry building, construction of which is contemplated for the latter part of 1925.

KANSAS CITY, MO.—Harrington Calliope Co., Los Angeles, has leased a site here at Sixth street and Broadway, where it plans the construction of a manufacturing plant.

ST. LOUIS—Love Johnson Motor Co. has retained E. E. Christopher, 6025 Etzel avenue, as architect for a 1-story automobile sales and service building. W. R. Johnson, 4149 J. Russell avenue, is in charge.

LAUREL, MISS.—Bartram Hoe Works has announced plans for improvements of the plant to increase production to 350 hoes daily.

NEWARK, N. J.—Nathan and William Newmark, 301 Johnson street, have retained Nathan Siegler, 164 Market street, as architect for 1-story, 75 x 134-foot garage and service building.

ROCHELLE PARK, N. J.—Sandow Tool Co. has awarded general contract to Kannie Construction Co., 71 Mt. Vernon avenue, Ridgefield Park, N. J., for constructing a machine shop addition.

ALBUQUERQUE, N. M.—The Albuquerque Gas & Electric Co. is to start work shortly on a $1,000,000 power plant at Nernalillo with transmission lines to supply power to the middle Rio Grande valley.

BROOKLYN, N. Y.—Poney-Bike Mfg. Corp. has been incorporated with $500,000 capital, to manufacture toys by J. K. Selenkow, M. G. and S. Goldstein, and E. I. Gottlieb, 185 Madison avenue, New York, as attorney.

BROOKLYN, N. Y.—Howard & Morse has been incorporated with 1250 shares $1000 par value preferred and 150 shares no par value common stock, to manufacture and deal in wire cloth by S. and W. B. Howard and F. A. Purdy, with Howard & Morse, 1121 DeKalb avenue, as attorneys.

BUFFALO, N. Y.—Sukernek Iron & Metal Co. has been incorporated for $20,000 by F. E. and L. Sukernek, with E. Rubenstein as attorney.

BUFFALO, N. Y.—Beals, McCarthy & Rogers, 50 Terrace, iron and steel jobbers, are erecting a $500,000 warehouse and shop on Elk street. Robert H. Redpath, Mutual Life building, is architect.

BUFFALO, N. Y.—Munro Metal Products Corp. has been incorporated for $25,000 to manufacture and deal in metal products by T. E. and G. P. Tynes and E. C. Oberkircher, with W. R. Heath as attorney.

BUFFALO, N. Y.—Automatic Nut Thread Corp. has been incorporated for $250,000 to manufacture threading machinery, by P. H. F. Spies, W. C. Rouse and A. M. Lotz, with J. L. Kinney as attorney.

BUFFALO, N. Y'—Karl Saw Co. has been formed with $50,000 capital, to manufacture and deal in saws and other tools, by W. and G. J. and G. J. Karl Jr., with M. A. Stoner as attorney.

NEW YORK—Richmond Steel Co. has been incorporated to manufacture and deal in steel products, by D. A. Dorsey, E. B. Roberts and R. J. Skyes, with Bonynge & Barker 27 William street, as attorneys.

NEW YORK—The Inspiration Consolidated Copper Co., 25 Broadway, will erect a leaching plant at its Inspiration, Ariz., property. Bids are now being received on the first unit.

NEW YORK—Arenco Machine Co. has been incorporated for $300,000 to manufacture and deal in machinery and industrial equipment, by A. Jordahl, W. E. Wheeler and B. Tomlinson, with American, Kregser & Toll Corp., 522 Fifth avenue, as asttorney.

NEW YORK—King Auto Supply Mfg. Co. has been formed with $25,000 capital, to manufacture automobile luggage carriers and other accessories, by S. G. Honig, J. Katz and D. Schwartz, with J. M. Rudy, 41 East Forty-second street, as attorney.

UTICA, N. Y.—George W. Dunham Corp. has been incorporated for $250,000 to manufacture and deal in electrical supplies, by G W. Dunham, R. U. Herman and J. F. Hubbell, with Miller & Hubbell, as attorneys.

CHARLOTTE, N. C.—Lockwood, Greene & Co., Boston, engineers, have been retained as engineers for the storage and supply building for the Goodyear Tire & Rubber Co.

WAHPETON, N. D.—R. C. Michael Motor

Agency, has plans for constructing a 1-story, 75x100-foot garage and automobile repair shop at Dakota avenue and Seventh street.

CLEVELAND—C'eveland Structural Steel Co., 6600 Grand avenue, has plans for constructing a 1-story, 75x120-foot plant on Grand avenue.

CLEVELAND—Cleveland Sheet Metal Co. has been incorporated for $20,000 by Herbert P. Wedel, E. C. Yeager, Dan W. Spelman, P. V. Kalina and John P. Kalina.

CLEVELAND—Bryant Heater & Mfg. Co., 952 East Seventy-second street, has retained George Fox, 310 Sixth-St. Clair building, as architect for a plant at East 179th street and St. Clair avenue.

CLEVELAND—Grabler Mfg. Co., 6565 Broadway, plans constructing a 1-story plant for manufacture of novelty metal products. W. S. Bayer is secretary. Christian, Schwarzenberg & Gaeda, 1900 Euclid avenue, are architects.

COLUMBUS, O.—Ohlen-Bishop Swan Co., 923 Engleside avenue, was damaged by fire recently with heavy loss. Work of rebuilding damaged portions of the plant will be started immediately, according to Winfield Lent, superintendent.

DEFIANCE, O.—Page Organ Co. has retained the Austin Co., 16112 Euclid avenue, Cleveland, for constructing a 1-story, 73x133-foot brick and steel sash plant addition. D. M. Samson is plant manager.

TOLEDO, O.—Acme Power plant will construct an addition costing $1,250,000, according to B. C. Adams, president of the Toledo-Edison Co.

TOLEDO, O.—Art Iron & Wire Works, has awarded contracts to Gettins-Kopitke Co., Fifteenth and Wabash streets, for 1-story, 60 x 141-foot plant. Godfrey Schlatter, 2113 Canton avenue is manager. Mills, Rhine, Bellman & Nordhoff, are architects.

VERMILLION, O.—The F. W. Wakefield Brass Co. manufacturer of commercial lighting fixtures, has awarded contracts to the Austin Co., Cleveland, for rebuilding portion of plant recently damaged by fire. The new unit will be 1-story high.

WATERFORD, O.—Waterford Mill & Supply Co. has been incorporated for $20,000 by A. E. Roberts and J. L. Deering.

PORTLAND, OREG.—Baker Mfg. Co., 263 Sixteenth street, manufacturer of electrical fixtures, recently was damaged by fire.

ALTOONA, PA.—Work will be started this spring by the Pennsylvania railroad on the erection of a new locomotive repair shop costing $100,000.

MONESSEN, PA.—Page Steel & Wire Co. has awarded contracts to McClintic-Marshall Co. for erecting an additional building.

NANTICOKE, PA.—Glen Alden Coal Co. has awarded contracts to Fort Pitt Bridge Works for erecting a fuel preparation building.

PHILADELPHIA—Air Reduction Sales Corp. plans plant on Germantown and Allegheny avenues. W. W. Barnes is general manager.

PHILADELPHIA—Plans are being prepared by William Steele & Sons Co. for the erection of a manufacturing building and office for Henry Disston Sons, Inc., Wissonoming and Unruh streets.

PHILADELPHIA—General contract for the erection of a $25,000 warehouse for the Merchants Warehouse Co., at the Southeast corner of Front and Bainbridge streets, has been awarded to the George Kessler Contracting Co., 1733 North Mervine. The proposed structure will be two stories high, of steel and concrete.

PHILADELPHIA—Philadelphia Electric Co. will form a corporation to finance construction of a giant power plant at Conowingo, Md., according to Walter H. Johnson president of the company. Plans have been approved by the federal water power commission. The new plant will cost about $52,000,000 and will be constructed by the Susquehanna Power Co., Belair, Md., reported to be a subsidiary of the Philadelphia company.

PITCAIRN, PA.—Pennsylvania railroad has awarded contracts to the Pittsburgh-Des Moines Steel Co. for constructing a shops building here.

PITTSBURGH—American Nut & Bolt Fastener Co. has awarded contracts to the W. N. Kratzer Co. for erecting a plant.

PITTSBURGH—The Combustion & Chemical Engineering Corp. has been incorporated for $5000 by J. M. Hopwood, E. M. Chaney and T. A. Peebles of Dormont and Mt. Lebanon.

PITTSBURGH—American Spiral Pipe Works, Lawrenceville, has awarded contracts to the J. E. Moss Iron Works, Wheeling, W. Va., for erecting a shops building.

PITTSBURGH—Allegheny Gear Works, through W. B. Dawson & Co., has sold to the National Metal Products Co., 100 feet on Chateua street, Northside, for plant sites.

PITTSBURGH—J. S. McCormick Co., Twenty-fifth street and Allegheny railroad was damaged by fire recently with light loss. The company operates a steel foundry, but damage was confined to the tin warehouse.

PITTSBURGH—Stanford Sanitary Mfg. Co., Bessemer building, has retained Hunting & Davis Co., Century building, as architects for 5-story, 90 x 250-foot building on Galveston avenue, between South street and the Ohio river. T. Ahrens is president of the Standard company.

POTTSTOWN, PA.—The Spicer Mfg. Co. plans constructing a plant 1-story, and 150 feet wide for assembling purposes. Considerable new machinery is to be installed. The company manufactures universal joints for automobiles.

READING, PA.—Reading Knob Works, Inc., has plans for constructing 3-story, 30 x 200-foot plant addition for which Claude B. Mengel, 1122 Penn boulevard, Wyomissing, Pa., is architect. Charles L. Heizmann, is president.

MEMPHIS, TENN.—Mills-Morris Co., South main street, has awarded contracts for constructing a 1-story, warehouse and shops building for automobile accessories business at 171 South Dudley street.

KNOXVILLE, TENN.—Fulton Co. plans expenditure of $15,000 to $20,000 for enlarging its plant on Kingston pike. The company manufactures heat regulators.

CHILDRESS, TEX.—Union Boiler Works has started construction of a 50x100-foot shop of concrete and brick, replacing the old wooden structure recently wrecked.

GAINESVILLE, TEX.—Santa Fe system, is reported as contemplating constructing a double roundhouse for which shop equipment will be needed. C. F. W. Felt, Chicago, is chief engineer.

BRAMERTON, WASH.—The United States engineers office is reported as taking bids on an electric crane until Feb. 4.

SEATTLE—Peter P. Gjarde, Lyon building, contractor, is low bidder on the construction of a 1-story plant for the Hofius Steel & Equipment Co. *Noted Dec. 25.*

WALLA WALLA, WASH.—Walla Walla Iron Works plans expansion and definite details of program soon will be formulated.

HUNTINGTON, W. VA.—A. F. Thompson Mfg. Co., 118 Eighth avenue, plans erecting a 3-story addition to its plant for the manufacture of patented burners for gas ranges and heaters.

HUNTINGTON, W. VA.—Thomas O'Neill Machine Shop Co. has been incorporated for $25,000 by Thomas O'Neill as president, Bessie V. O'Neill, Clark Applegate, Otto Stetler and B. C. Sharitz. The plant is situated at 947 Second avenue.

GREEN BAY, WIS.—Northwestern Engineering Works, Howard and South Pearl streets has awarded contracts for constructing 1-story, 22 x 130-foot addition to its machine shop. Additional drilling machines and a chain hoist are required for equipping the addition.

MILWAUKEE—Peacock & Frank, Colby-Abbot building, are architects for an automobile structure costing approximately $175,000, to be constructed for an unnamed owner, the plant being 5-story, brick, steel and concrete, 100 x 120-foot, containing storage room and repair shops. Bentley Bros. 808 South Pierce street, are general contractors.

Business in Canada

OTTAWA, ONT.—The Federal Combustion Corp., Ltd., has been organized with $200,000 capital stock, to manufacture and deal in oil burners, machines, tools, equipment, etc., by John M. Bell, Elmer G. Falls, and Frederick Fowler.

PORT ARTHUR, ONT.—H. B. Dawson is inquiring for machinery for sheet metal shop, including an electric motor, power rivetter, press, punch, foot squaring shears, hand rolls and adjustable folder.

SARNIA, ONT.—Peterson & Scott, Ltd., has been incorporated to manufacture and deal in automobiles, trucks, tractors, vehicles, engines, with $40,000 capital, by Francis P. Dawson, Francis A. McKinley and Norman L. LeSueur.

TORONTO, ONT.—Rogers Radio, Ltd., has been incorporated to manufacture and deal in radio machines, appliances and equipment with $50,000 capital, by Samuel Rogers, George E. Edmonds and Walter M. Rowland.

TORONTO, ONT.—Donald F. Johnston, Ltd., has been incorporated to manufacture and deal in automobile accessories and parts, with $40,000 capital stock, by James Cowan, Thomas J. Darby and Charles B. Henderson.

TORONTO, ONT.—Dean-Chandler Co., Ltd., has been incorporated to carry on the business of general contractor and manufacturer of iron and steel and other metals with $40,000 capital stock, by Harold L. Steel, George McC. Willoughby and Gerald Murphy.

TORONTO, ONT.—Harmer Knowles Truck Corp., Ltd., has been incorporated to manufacture and deal in automobiles, trucks, cars, boats, etc., with $100,000 capital stock, by John W. Rowland, James P. Manley and Clarendon F. Worrell.

TORONTO, ONT.—The American Development Co., Ltd., has been incorporated to mine, smelt, and reduce ores, metals and minerals, with $50,000 capital stock, by Robert B. Duggan, John A. Boyd and Wildred Heighington.

WINDSOR, ONT.—The Warford Corp. of Canada, Ltd., has been incorporated for $40,000 to manufacture and deal in automobiles, motors, trucks, tractors, and other mechanical equipment and parts, by Halsey V. Welles, Ethel D. Welles and Victor J. Diver.

MONTREAL, QUE.—The Robert Mitchell Co., Ltd., has been incorporated to carry on the business of iron founder in all branches, with 4000 shares no par value common stock, by Francis G. Bush, George R. Drennan and Michael J. O'Brien.

Iron and Steel Scrap Prices

CORRECTED TO TUESDAY NOON GROSS TONS DELIVERED TO CONSUMER

Steel Works Scrap

HEAVY MELTING STEEL

Birmingham	15.50 to 16.00
Boston (dealers)	16.00 to 16.50
Buffalo	19.50 to 20.50
Chicago	19.50 to 20.00
Cleveland	21.00 to 21.25
Cincinnati (dealers)	16.50 to 17.00
Detroit	18.50 to 19.50
Eastern Pennsylvania	19.00 to 19.50
New York (dealers)	15.50 to 16.50
Pittsburgh	22.00 to 22.50
St. Louis	18.00 to 18.50
Valleys	22.00 to 22.50
No. 1 railroad steel New York (dealers)	16.00 to 16.50

COMPRESSED SHEETS

Buffalo	18.50 to 19.00
Chicago	16.25 to 16.75
Cleveland	18.00 to 18.50
Detroit	17.00 to 17.50
Pittsburgh	21.00
Valleys	20.00 to 20.50

BUNDLED SHEETS

Buffalo	15.50 to 16.00
Cincinnati (dealers)	12.50 to 13.00
Cleveland	15.50 to 16.00
Detroit	15.00 to 15.50
Eastern Pennsylvania	17.00 to 17.50
Pittsburgh	20.00
St. Louis	12.50 to 13.00
Valleys	18.00 to 18.50

SHEET CLIPPINGS, LOOSE

Chicago	12.00 to 12.50
Detroit	13.00 to 13.50

STEEL RAILS, SHORT

Birmingham	15.00 to 16.00
Detroit, No. 2	14.50 to 15.00
Chicago	21.50 to 22.00
Cincinnati (dealers)	18.00 to 18.50
Cleveland (over 6 ft.)	20.00 to 20.50
St. Louis	20.50 to 21.00

STOVE PLATE

Birmingham	15.00 to 16.00
Boston (consumers)	15.50 to 16.00
Buffalo	16.50 ot 17.00
Chicago	18.00 to 18.50
Cincinnati (dealers)	12.50 to 13.00
Cleveland	16.00 to 16.50
Detroit (net tons)	15.00 to 15.50
Eastern Pennsylvania	16.50 to 17.00
New York (dealers)	12.75 to 13.50
Pittsburgh	18.00 to 18.50
St. Louis	17.00 to 17.50

LOW PHOSPHORUS

Buffalo	22.50 to 23.00
Cincinnati((dealers)	18.00 to 18.50
Eastern Pennsylvania	23.00 to 24.00
Pitts. billet and bloom crops	26.00 to 26.50

SHOVELING STEEL

Chicago	19.25 to 19.75
Pittsburgh	16.00 to 16.50
St. Louis	18.00 to 18.50

KNUCKLES, COUPLERS, SPRINGS

Chicago	22.00 to 22.50
Eastern Pennsylvania	22.00 to 23.00
Pittsburgh	24.00 to 24.50
St. Louis	22.50 to 23.00

FROGS, SWITCHES, GUARDS

Chicago	20.00 to 20.50
Eastern Pennsylvania	19.00 to 19.50
St. Louis	20.00 to 20.50

BOILER PLATE, CUT

St. Louis	11.50 to 12.00

ANGLE BARS—STEEL

Buffalo	20.50 to 21.00
Chicago	21.00 to 21.50
St. Louis	19.00 to 19.50

Iron Mill Scrap

RAILROAD WROUGHT

Birmingham	14.00 to 15.00
Boston (dealers)	16.00 to 17.00
Buffalo No. 1	17.00 to 17.50
Buffalo No. 2	19.50 to 20.50
Cleveland, No. 1	17.00 to 17.50
Chicago, No. 1	19.00 to 19.50
Chicago, No. 2	19.50 to 20.00
Cincinnati, No. 1 (dealers)	14.00 to 14.50
Detroit, No. 2	15.00 to 15.50
Eastern Pennsylvania	21.00 to 22.00
New York, No. 1 (dealers)	17.00 to 17.50
Pittsburgh, No. 1	18.50 to 19.00
Pittsburgh, No. 2	22.00 to 22.50
St. Louis, No. 1	18.00 to 18.50
St. Louis, No. 2	18.00 to 18.50

WROUGHT PIPE

Boston (dealers)	13.50 to 14.00
Buffalo	14.00 to 14.50
Eastern Pennsylvania	18.50
New York (dealers)	14.25 to 14.75

YARD WROUGHT

Boston	16.00 to 16.50
Eastern Pennsylvania	19.00 to 20.00

CITY WROUGHT

New York, long	16.00 to 16.50

BUSHELING

Buffalo	18.50 to 19.00
Chicago, No. 1	16.50 to 17.00
Chicago, No. 2	12.50 to 13.00
Cincinnati, No. 1 (dealers)	13.00 to 13.50
Cleveland, No. 1	16.75 to 17.00
Cleveland, No. 2	15.25 to 15.75
Eastern Pennsylvania	15.00 to 16.00
Pittsburgh, No. 1	18.00 to 18.50
St. Louis, No. 1	16.50 to 17.00

MACHINE SHOP TURNINGS

Birmingham	8.00 to 9.00
Boston (dealers)	12.50 to 13.00
Buffalo	14.25 to 14.75
Chicago	12.00 to 12.50
Cincinnati (dealers)	13.00 to 13.50
Cleveland	17.00 to 17.50
Detroit	13.50 to 14.00
Eastern Pennsylvania	16.50 to 17.00
New York (dealers)	13.00 to 13.50
Pittsburgh	18.00 to 18.50
St. Louis	10.50 to 11.00
Valleys	16.25 to 16.75

CAST IRON BORINGS

Birmingham (chemical)	15.00 to 16.00
Birmingham (plain)	8.00 to 9.00
Boston (chemical)	16.00 to 16.50
Boston (dealers)	11.50 to 12.00
Buffalo	14.50 to 15.00
Chicago	15.25to 15.75
Cincinnati (dealers)	13.00 to 13.50
Cleveland	17.00 to 17.25
Detroit	13.50 to 14.00
Eastern Pennsylvania (chem.)	21.00 to 22.00
Eastern Pennsylvania	16.00 to 16.50
New York (dealers)	11.25 to 11.75
Pittsburgh	17.50 to 18.00
St. Louis	14.50 to 15.00
Valleys	17.25 to 17.50

MIXED BORINGS AND TURNINGS
For blast furnace use

Boston (dealers)	10.00 to 10.50
Cincinnati (dealers)	11.50 to 12.00
Cleveland	17.00 to 17.25
Detroit	13.50 to 14.00
Eastern Pennsylvania	14.00 to14.50
New York (dealers)	10.75 to 11.25
Pittsburgh	16.00 to 16.50

IRON AXLES

Birmingham	19.00 to 20.00
Boston (consumers)	31.00 to 32.00
Buffalo	26.50 to 27.00
Chicago	30.50 to 31.00
Cincinnati (dealers)	24.50 to 25.00
Eastern Pennsylvania	30.00
St. Louis	28.00 to 28.50

IRON RAILS

Buffalo	18.00 to 18.50
Chicago	20.50 to 21.00
Cincinnati (dealers)	14.00 to 14.50
St. Louis	18.00 to 18.50

PIPES AND FLUES

Chicago	15.00 to 15.50
Cincinnati (dealers)	11.00 to 11.50
Cleveland	15.25 to 15.75
St. Louis	14.00 to 14.50

RAILROAD GRATE BARS

Buffalo	15.50 to 16.00
Chicago	18.00 to 18.50
Cleveland	16.00 to 16.50
Eastern Pennsylvania	17.00
New York (dealers)	15.00 to 15.50
St. Louis	17.00 to 17.50

FORGE FLASHINGS

Boston (dealers)	12.50 to 13.00
Buffalo	15.00 to 15.50
Chicago	14.00 to 14.50
Cleveland (under 10 in.)	16.00 to 16.50
Cleveland (over 10 in.)	15.25 to 15.75
Detroit	13.00 to 13.50
Pittsburgh	18.00 to 18.50

FORGE SCRAP

Boston (dealers)	12.50 to 13.00
Chicago	23.00 to 23.50
Eastern Pennsylvania	17.00 to 17.50

ARCH BARS AND TRANSOMS

Chicago	24.25 to 24.75
St. Louis	23.00 to 23.50

ANGLE BARS—IRON

Chicago	23.00 to 23.50
St. Louis	23.00 to 23.50

Iron and Steel Works Scrap

AXLE TURNINGS

Boston (dealers)	12.50 to 13.00
Buffalo	15.00 to 15.50
Chicago	17.50 to 18.00
Cleveland	18.25 to 18.50
Eastern Pennsylvania	18.50 to 19.00
Pittsburgh	18.50 to 19.00
St. Louis	14.50 to 15.00

STEEL CAR AXLES

Birmingham	18.00 to 19.00
Boston (shipping point)	20.00 to 20.50
Buffalo	20.00 to 20.50
Chicago	23.00 to 23.50
Cleveland	20.00 to 20.50
Eastern Pennsylvania	25.00 to 26.00
Pittsburgh	24.00 to 24.50
St. Louis	23.00 to 23.50

SHAFTING

Boston (shipping point)	20.00 to 20.50
Chicago	22.50 to 23.00
Eastern Pennsylvania	25.00 to 26.00
New York (dealers)	19.50 to 20.50
St. Louis	20.00 to 20.50

Iron Foundry Scrap

CAR WHEELS

Birmingham, tram car	17.00 to 18.00
Birmingham, iron	16.00 to 17.00
Boston (consumers)	18.00 to 19.00
Buffalo	20.50 to 21.00
Chicago, iron	21.00 to 21.50
Chicago, steel	22.00 to 22.50
Cincinnati	15.50 to 16.00
Eastern Pennsylvania	20.00 to 21.00
New York iron (dealers)	16.00 to 17.00
Pittsburgh, iron	21.00 to 21.50
Pittsburgh, steel	24.00 to 24.50
St. Louis, iron	20.50 to 21.00
St. Louis, steel	22.50 to 23.00

NO. 1 CAST SCRAP

Birmingham, cupola	17.00 to 17.50
Boston (consumers)	19.50 to 20.00
Buffalo	18.25 to 18.75
Chicago, No. 1 machinery	21.50 to 22.00
Chicago No. 1 railroad or agricultural	20.00 to 20.50
Cincinnati No. 1 Machinery cupola (net tons dealers)	20.50 to 21.00
Cleveland, cupola	20.00 to 20.50
Detroit (net tons)	19.50 to 20.50
Eastern Pennsylvania, cupola	20.50 to 21.00
New York, cupola (dealers)	17.00 to 17.50
Pittsburgh, cupola	20.00 to 21.00
San Francisco, delivered	24.00
Seattle	18.00
St. Louis, railroad	20.50 to 21.00
St. Louis, agricultural	20.50 to 21.00
St. Louis, machinery	21.50 to 22.00
Valleys	19.50 to 19.75

HEAVY CAST

Boston (consumers)	17.50 to 18.00
Buffalo (breakable)	16.00 to 16.50
Cleveland	16.00 to 16.50
Detroit (automobile) (net ton)	22.50 to 23.50
Eastern Pennsylvania	18.50 to 19.00
New York (dealers)	17.00 to 17.50
Pittsburgh	19.00 to 19.50

MALLEABLE

Boston (railroad	19.00 to 20.00
Buffalo	20.00 to 21.00
Chicago, railroad	21.50 to 22.00
Chicago, railroad	20.50 to 21.00
Cincinnati, agricultural (dealers)	17.50 to 18.00
Cincinnati, railroad (dealers)	18.00 to 18.50
Cleveland, agricultural	19.50 to 20.00
Cleveland, railroad	22.50 to 22.75
Detroit	18.50 to 19.00
Eastern Pennsylvania, railroad	16.50 to 17.00
Pittsburgh, railroad	22.50 to 23.00
St. Louis, agricultural	17.75 to 18.00
St. Louis, railroad	18.25 to 18.75

Miscellaneous Scrap

RAILS FOR ROLLING
5 feet and over

Birmingham tram car	17.00 to 17.50
Boston (dealers)	15.50 to 16.00
Chicago	21.00 to 21.50
Cleveland	21.00 to 21.25
Detroit	18.50 to 19.00
Eastern Pennsylvania	21.00
New York (dealers)	17.50 to 18.00
Pittsburgh district	23.00 to 24.00
St. Louis	21.00 to 21.50

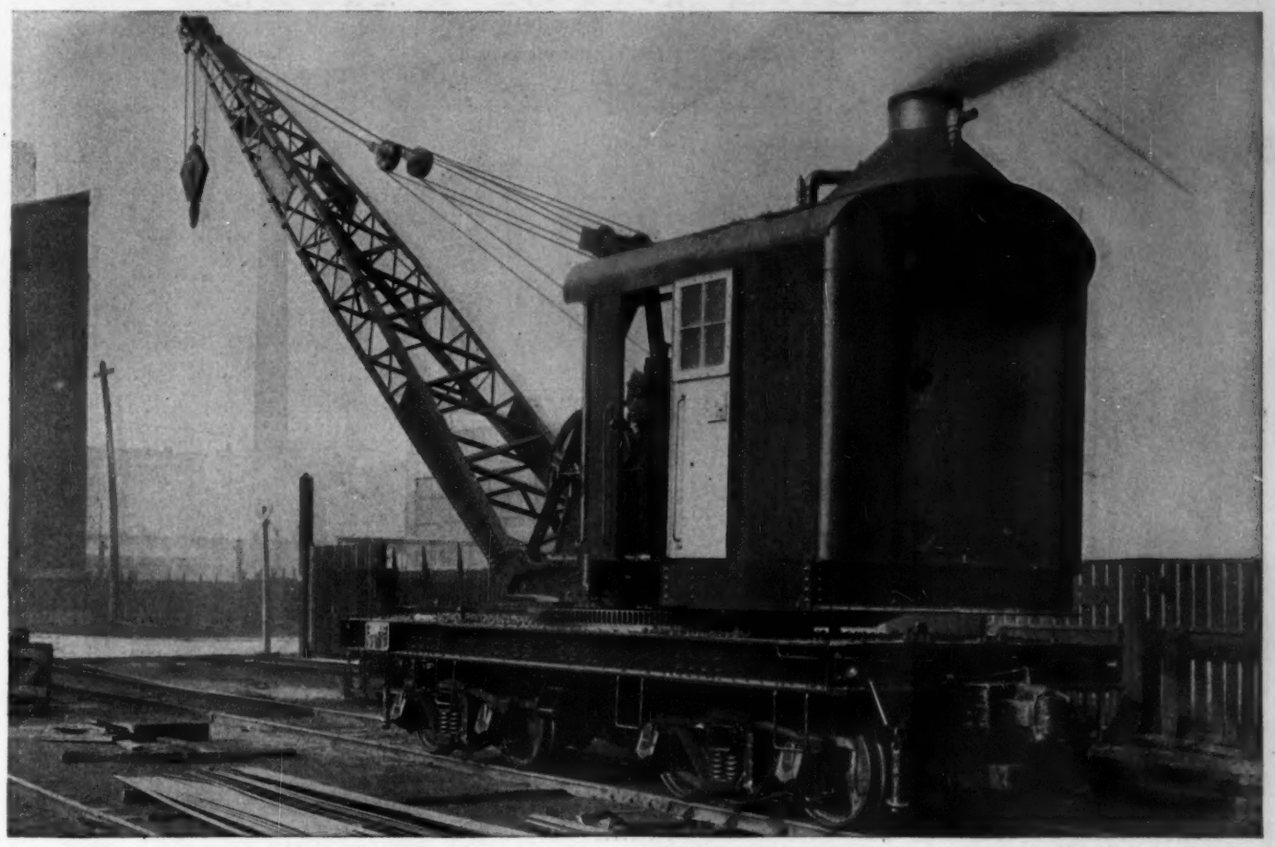
LOCOMOTIVE TIRES

Chicago (cut)	23.50 to 24.00
St. Louis	19.50 to 20.00

LOW PHOSPHORUS PUNCHINGS

Chicago	21.00 to 21.50
Eastern Pennsylvania	22.00
Pittsburgh	24.00 to 24.50

The Greatly Improved Brownhoist



A Better Crane For Your Work

You know what your first thought was when you were told about the greatly improved No. 4 Brownhoist. Naturally, you said to yourself, "The other No. 4 was a good crane, this must be a wonder". It is.

For one thing, this improved twenty ton locomotive crane handles more, it is easier to operate, more economical and, if possible, more dependable. And probably best of all from the users standpoint, these improvements are all thoroughly proved—you can count on Brownhoist experience to take care of that.

Does your handling problem require a bucket, hook or magnet crane? Whatever your work, the improved No. 4 crane will do it to your entire satisfaction. We would appreciate the opportunity of giving you any further information you might wish.

The Brown Hoisting Machinery Co., *Cleveland, Ohio*

Brownhoist Products: Locomotive Cranes, Bunkers, Conveyors, Bridge Cranes, Crushers, Larries, Buckets, Etc.
Branch Offices: New York, Chicago, Pittsburgh, San Francisco, New Orleans, London, Eng.

BROWNHOIST

GOOD MATERIAL HANDLING MACHINERY

JAN 29 1925

Iron and Steel Prices

Nuts and Bolts

F.o.b. producer's plant freight allowed on 1000 pounds or more, substantially all points east of Mississippi and north of Ohio river.

Hot pressed square tapped or blank .....$4.00 off list
Hot pressed hexagon tapped or blank .....$4.40 off list
Cold punched square or hexagon blank .....$4.10 off list
Cold punched square or hexagon tapped or blank .....$4.10 off list
Cold punched semifinished hexagon nuts ⅜-inch and larger ....75, 10 and 5 off
Cold punched semifinished hexagon nuts 9/16-inch and smaller..80, 10 and 5 off
Price f.o.b. Pittsburgh, packages of 50.

CARRIAGE BOLTS

(⅜ x 6", smaller and shorter)

Rolled thread .....50, 10 and 5*
Rolled thread .....50, 10 and 10 off
Cut thread (all sizes) .....50 and 10 off
Eagle carriage bolts (Eagle list) 65 and 10 off

MACHINE BOLTS

(⅜ x 4", hot pressed nuts)

Rolled thread .....50, 10 and 5*
Rolled thread .....60 and 10 off
Cut thread (all sizes) ....50, 10 and 10 off
(All sizes cold punched nuts)
Cut thread .....45, 10 and 5 off
Lag screws .....60, 10 and 10 off
Plow bolts Nos. 1, 2 and 3 heads.. ..... 50 and 10 off
4 to 10 heads .....50-10 + 20 off
*Flat and round head stove bolts.... .....80 and 5 off
Tap bolts .....30 off
Bolt ends with hot pressed nuts..... .....50, 10 and 10 off
Bolt ends with cold punched nuts.... .....45, 10 and 5 off
Blank bolts .....50, 10 and 10 off
Rough stud bolts with nuts (250 pieces or more of a size) ....40 and 10 off

SEMIFINISHED CASTELLATED AND SLOTTED NUTS

Per 1000, f.o.b. producer's plant, freight Allowed

	S. A. E. Castellated	U. S. S. Slotted
¼	$ 4.40	$ 4.40
5/16	5.15	5.15
⅜	6.20	6.60
7/16	7.90	9.00
½	10.10	10.50
9/16	13.80	14.20
⅝	17.00	17.30
¾	23.50	24.00
⅞	36.00	36.00
1	55.50	58.00
1⅛	89.00	89.00
1¼	126.00	131.00
1⅜	183.50	183.50
1½	210.00	210.00

Larger sizes—Prices on application
*Price quoted on small business.

HEXAGON CAP AND SET SCREWS

Milled .....80, 10, and 10 off
Upset .....80, 10, 10 and 10 off
*F.o.b. producer's plant freight allowed on 300 pounds or more as above.

Rivets

Structural rivets, carloads Pittsburgh and Cleveland.... 2.60c
Structural rivets, carloads, Chicago 2.75c
Rivets, 7/16-in. and smaller Pittsburgh and Cleveland..70, 10 and 5 off
Rivets, 7/16-in. and smaller Chicago* .....70, 10 off
*Some makers quoting 70 off with freight allowed on 300 pounds or more.

Washers

Wrought, c. l., Chicago dist..... .....$5.75 to $6.00 off
Wrought, c. l., Pitts. dist.....$6.10 off
Lock washers f.o.b. factory 80, 10 and 5 off

Steel Pipe

Pittsburgh and Lorain basing discounts, jobber's carloads.

Evanston, Ill., and Indiana Harbor, Ind., take differential 2 points less discount of $4 per ton higher net.

Chicago takes differential 2½ points less than Pittsburgh-Lorain basis or $5 per ton higher net.

Butt Weld

	Black	Galvanized
⅛-inch	45	19½
¼ and ⅜-inch	51	25½
½-inch	46	42½
¾-inch	60	48½
1 to 3-inch	62	50½

Lap Weld

2-inch	55	43½
2½ to 6-inch	59	47½
7 to 8-inch	56	43½
9 and 10-inch	54	41½
11 and 12-inch	53	40½

REAMED AND DRIFTED

Butt Weld

1 to 3-inch	60	48½

Lap Weld

2-inch	53	41½
2½ to 6-inch	57	45½

EXTRA STRONG—PLAIN ENDS

Butt Weld

⅛-inch	41	24½
¼ and ⅜-inch	47	30½
½-inch	53	42½
¾-inch	58	47½
1 to 1½-inch	60	49½
2 to 3-inch	61	50½

Lap Weld

2-inch	53	42½
2½ to 4-inch	57	46½
4½ to 6-inch	56	45½
7 to 8-inch	52	39½
9 and 10-inch	45	32½
11 and 12-inch	44	31½

DOUBLE EXTRA STRONG

Butt Weld

½-inch	42	32½
¾ to 1½-inch	45	35½
2 to 2½-inch	47	37½

Lap Weld

2-inch	41	32½
2½ to 4-inch	43	34½
4½ to 6-inch	42	33½
7 to 8-inch	38	25½

Wrought Iron Pipe

Pittsburgh basing discounts, jobbers' carloads. Individual quotations made on delivered basis

THREADS AND COUPLINGS

Butt Weld

¼ and ⅜-inch	+11	+39
½-inch	22	2
¾-inch	28	11
1 to 1½-inch	30	13

Lap Weld

1¼ and 1½-inch	Upon application	
2-inch	23	7
2½ to 6-inch	26	11
3 to 6-inch	28	13
7 to 12-inch	26	11

PLUGGED AND REAMED

Two points less than above

EXTRA STRONG, PLAIN ENDS

Butt Weld

¼ and ⅜-inch	+19	+54
½-inch	21	7
¾-inch	28	12
1 to 1½-inch	30	14

Lap Weld

2-inch	23	9
2½ to 4-inch	29	15
4½ to 6-inch	28	14
7 to 8-inch	21	7
9 to 12-inch	16	2

DOUBLE EXTRA STRONG

Butt Weld

½-inch	+47½	+59½
¾-inch	+28	+40
1-inch	+34	+40
1¼-inch	+28	+40
1½-inch	+27	+39

Lap Weld

2 and 2½ inches	+13	+25
3 to 4-inch	+ 8	+17
4½ to 6-inch	+ 9	+18
8-inch	+12	

Boiler Tubes

Pittsburgh less carload discounts. Carload 4 points larger

STEEL (Lap Welded)

2 and 2¼-inch ..... 23 off
2½ and 2¾-inch ..... 33 off
3-inch ..... 36 off
3¼ to 3¾-inch .....38½ off
4 to 13-inch ..... 42 off

CHARCOAL IRON

1½-inch ..... +22
1¾-inch ..... +12
2 and 2¼-inch ..... + 2
2½ to 3-inch 3
3¼ to 4½-inch 5

SEAMLESS COLD DRAWN*

1-inch 51-off
1¼ and 1½-inch ..... 43 off
1¾-inch ..... 27 off
2 and 2¼-inch ..... 18 off
2½ and 2¾-inch ..... 28 off
3 and 3¼-inch ..... 32 off
3½ and 3¾-inch ..... 33 off
4-inch ..... 37 off
4½ and 5-inch ..... 29 off

SEAMLESS HOT ROLLED*

3 and 3¼-inch ..... 34 off
3½ and 3¾-inch ..... 35 off
4-inch ..... 39 off

SEAMLESS STEEL MERCHANT BOILER TUBES*

Extras:

Add $8 per net ton for more than four gages heavier than standard and add 10 per cents to theoretical weight.

Add 5 per cent for lengths over 24 feet and not over 26 feet.

Smaller tubes than 1-inch and lighter than standard gage to be sold at mechanical tubing list and discount.

Intermediate sizes and gages not listed above take price of next larger outside diameter and heavier gage.

SEAMLESS STEEL MECHANICAL TUBING*

Base Discounts

Carbon, 0.10 to 0.20 per cent ..... 83 off
Carbon, 0.30 to 0.40 per cent .... 81 off
Carbon, 0.40 to 0.50 per cent....net price
Plus differentials and extras for cutting.

SEAMLESS STEEL LOCOMOTIVE AND SUPERHEATER TUBES*

Net prices per foot f.o.b. Pittsburgh

Outside diameter	Gage	Price
2-inch	12-gage	15c
2-inch	11-gage	16c
2-inch	10-gage	17c
2¼-inch	12-gage	17c
2¼-inch	11-gage	18c
2¼-inch	10-gage	20c
3-inch	7-gage	35c
1½-inch	9-gage	15c
5⅜-inch	9-gage	55c
5½-inch	9-gage	57c

Plus usual extras for forming and for long lengths.

*Published discounts are subject to considerable shading, in some cases as much as five extra 5 per cents.

Cast Iron Water Pipe

Prices per net ton

Class B Pipe

Four-inch, Chicago .....$53.20 to 54.20
Six-inch and over, Chicago .. 49.20 to 50.20
Four-inch, Birmingham .... 44.00 to 44.50
Six-inch and over Birmingham 40.00 to 40.50
Four-inch, New York ..... 60.50 to 61.60
Six-inch and over, New York 55.50 to 56.60
Standard fittings, Birmingham, base..$110.00
6 to 24-inch, base; over 24-inch, plus $20; 4-inch, plus $20; 3-inch, plus $20; gas pipe fittings, $5 higher.
Class A pipe is $5 higher than Class B.